A Database Publication

ATARI USER

Vol. 3 No. 1 May 1987 £1

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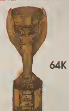

Vol 3 No 1 May 1987

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News 5
All the latest news from the ever-changing Atari world

Calculator 10
Now you can have a pop up calculator on your 8 bit Atari, just like the one you see on the ST

Five Liners 14
More of your £25-winning programs, including a great routine to give a new use to the Console keys

Reviews 19
Our Star Game this month is the long awaited Spindizzy, and we also look at Green Beret, Space Lobsters, Master Chess, Who Dares Wins II and Winter Games

Autorun 23
The second part of this much-requested series gives you a routine to create your own autoboot Basic tapes

Character Editor 28
Part two of Stephen Williamson's three part Advanced Character Set Editor gives you Load and Save routines to help you use your character sets from Basic

Birthday competition 32
Help celebrate our second birthday – and for 385 lucky readers there's more than £3 000 in prizes!

Gadgets 34
Len Golding creates a graphic aid that will allow you to trace drawings onto the computer screen

Player Missiles 38
With this clever little machine code routine you can move your Player Missile graphics around the screen by using simple X, Y coordinates

Mailbag 41
Letters galore on all aspects of Atari computing, plus more of your own hints and tips to help other readers

Index 47
A complete index of every feature from the first two years of *Atari User*

Adventuring 51
Brilliant previews a couple of exciting new games, and lends a helping hand to those who can't find their way through the futuristic adventure, Planetfall

FULL and part-time writers are urgently needed by Database Publications, publishers of Atari User and its companion, Atari ST User. If YOU know the Atari or Atari ST inside out can express your ideas on paper – and want to become part of the exciting future that lies ahead for Atari machines, then write now to The Managing Editor, 68 Chester Road, Hazel Grove, Stockport SK7 5NY. Please include your phone number

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AT 5

Business package hits the chart

A BUSINESS software package has achieved a world first by storming its way into the all-important Gallup Top 40 chart on the eve of its launch for the Atari 8 bit range

Mini Office II the award winning title from Database Software (061 429 8008) entered the best selling list at number 25

The chart's considered the most significant of all on the UK software scene because it includes all machine formats

And what is even more surprising about Mini Office II's most recent success is that it had to compete against games costing as little as £1 99

Not that this is the first distinction to be achieved by the package Far from it Launched in October 1984 the original Mini Office was the finalist in two categories of the British Microcomputing Awards – the Oscars of the industry

The first version for the BBC Micro also displaced games to reach the Top Ten for that machine

Mini Office version one went on to win national acclaim for being ahead of its time in that it was the first professionally written low cost business package At just £5 95 on cassette for the BBC Micro the price tag was considered revolutionary as its nearest competitor cost several hundred pounds

Its much enhanced successor Mini Office II took 26 man years programming and contains six modules – word processor database spreadsheet graphics label printer and communications

Mini Office II is priced at £19 95 on disc for the Atari 8 bit range

Atari is wooing software houses

ATARI's new good neighbours policy towards support companies is already paying dividends Software house representatives are now visiting Atari UK headquarters at the rate of two or three a day

And the result, says manager of software marketing Roland Whitehouse is great cooperation

We are showing that we want to keep up with new releases he said

He is receiving assurances that there will be plenty of software for the 8 bit and especially for the 65XE games machine

What is really encouraging is that there is an increasing number of firms committing themselves to producing cartridges for the new games machine said Whitehouse

The software house response confirms the company's belief that a major revival in the video console sector will happen this year

A company spokesman told *Atari User* 'We believe the average age of prospective buyers is getting younger

'This means there are a lot of under tens out there who aren't really ready for a proper micro but are keen to get their hands on a games machine

And it doesn't hurt Atari's prospects that we already have a games software range that it second to none

Atari originally estimated it would sell 150 000 8 bit computers and games consoles in 1987

But this figure had to be revised when advance orders for 70,000 units were placed within the first few weeks of the year

Now the company is talking about selling at least 200 000 – and possible a quarter of a million – games machines in 1987

A Mole in the micro

THE latest Adrian Mole series on Thames Television forms the basis of a new Virgin Games release for the Atari 8 bit machines

It is the sequel to The Secret Diary of Adrian Mole which was produced by Level 9 and Mosaic Publishing

The Growing Pains of Adrian Mole comes from the same joint source but is being marketed by Virgin Cassette price £9 95

Losing its magic . . .

MAGIC is old hat says text adventure specialist Robico

The company is looking for new writers on the Atari 8 bit but says software manager Rob O'Leary 'We are not too keen on magic adventures any more – unless they are really original

He explained that the firm has a very good freelance programmer doing conversions to the Atari so that only originals were needed

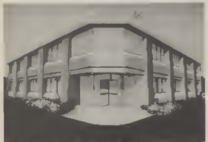
What we are looking for is finished or part finished programs which we will market We would evaluate them and even if the programming is not brilliant we can work on them

He said most Robico (0443 227354) adventures had more than 200 locations which was why graphics had never featured highly though they were not out of the question

O'Leary said that they were hoping to get more disc based adventures for the Atari

Derek Meakin and 149 fellow diggers attack the green field site of the new headquarters

Digging away for Atari User's new home



The new headquarters of Atari User, due for completion at the end of 1987

THE world's first mass sod-cutting ceremony heralded the start of building a new £1 million home for *Atari User* and its sister Database Publications magazines

All 150 Database employees took part in the traditional act of ground-breaking to celebrate their role in the company's rise to prominence in computer magazine publishing

The new site in the Cheshire countryside near Stockport echoed to the sound of scores of spades and shovels hitting the ground simultaneously at a signal from Database head Derek Meakin

"We originally toyed with the idea of inviting a leading figure in the computer industry to perform the ceremony, he said, but decided in the end to keep it within the company

'All our employees have contributed to Database becoming the UK's leading publisher of computer magazines – so they all deserved to play a part on the big day

BT titles collect 31 awards

BRITISH Telecom's software titles have scooped an amazing total of 31 awards here and abroad in the past 12 months

The accolades were awarded by reader polls and computer journalists votes in magazines published in Britain, France Germany and the United States

More than two-thirds of Telecomsoft's sales of programs on the Rainbird Firebird and Beyond labels are now overseas

After The Pawn, The Thieves

WHEN The Pawn from Rainbird won acclaim across the board it was almost inevitable that there should be some sort of follow up

But the designers, Magnetic Scrolls resisted the temptation to do a "start where you left off" game

Guild of Thieves out on the Atari 8 bit shares the same setting as The Pawn, the mystical land of Kernovnia

But there the similarity ends All the characters and locations are new, as is the style Designed to appeal to a wider range of adventures, it has a more direct gameplay but with more problems to solve

Increased interaction too is another feature Humans animals and plants can be addressed in complex sentences through the parser

The adventure opens with your application to join the guild an elite band of professional rapscallions, where tests are set to prove an applicant's worth and status

You are given a task which will tax both your wits and ingenuity You have to ransack an island and capture its treasures while encountering a variety of useful and dangerous things

It includes several complex puzzles and 30 scene setting illustrations which, claim Rainbird (01 240 8838) add a new dimension to computer graphics

Soccer promotion

ONE of the first results of Prism's takeover of the Addictive Games label is the release on the Atari 8 bit of the best selling soccer computer game ever Football Manager at £2 99

This means says Prism "the game, in its new double cassette packaging, will be competing in a new division against the budget software teams

"We believe this newcomer is likely to cause quite a few upsets as it moves through the pack and to the top of the league"

Prism (01-804 8100) is planning to re-launch Addictive's Silicon Joy label to carry more budget priced games

Flying high

Hot air ballooning was never as eventful as in Up Up and Away from Bug-Byte for the Atari 8 bit micros

The obstacles in your flight path include aircraft, kites, birds, lightning, and punks throwing missiles

Fuel problems, landing and taking off again and throwing sandbags at the punks add to the fun Price £2.99

THE GALLUP CHART TOP 20 ATARI SOFTWARE

THIS MONTH	LAST MONTH	TITLE (Software House)	PRICE
1	▲1	BMX SIMULATOR *(Code Masters)*	1.99
2	•	COLONY *(Bulldog)*	1.99
3	▲5	GREEN BERET *(Imagine)*	9.95
4	▼3	GUN LAW *(Mastertronic)*	1.99
5	•	SILENT SERVICE *(Microprose/US Gold)*	9.95
6	▲8	DESPATCH RIDER *(Mastertronic)*	1.99
7	▼4	LA SWAT *(Mastertronic)*	2.99
8	▼2	SPIKY HAROLD *(Firebird)*	2.99
9	▲18	HOUSE OF USHER *(Mices)*	2.99
10	▲11	KNOCKOUT *(Americana)*	2.99
11	▼5	CRYSTAL RAIDER *(Mastertronic)*	2.99
12	•	MOLECULE MAN *(Mastertronic)*	2.99
13	▼7	RED MAX *(Code Masters)*	1.99
14	•	FOUR GREAT GAMES *(Micro Value)*	3.99
15	▼12	NINJA *(Mastertronic)*	1.99
16	•	SUPERMAN *(First Star/Prism)*	2.99
17	▼16	LEADERBOARD *(Access/US Gold)*	9.95
18	•	WARHAWK *(Firebird)*	1.99
19	▼9	NINJA MASTER *(Firebird)*	1.99
20	•	MONKEY MAGIC *(Micro Design)*	2.99

Compiled by Gallup/Microscope

Budget software is very much the order of the day, with Green Beret the top-selling full-price game followed by the excellent simulation Silent Service By the June issue we will know how Atari User's Star Game, Spindizzy, is selling

Bid to bring back BBC's Micro Live

TV's only regular computer programme Micro Live, has been axed But Database Publications prompted by hosts of letters from readers is determined it should be brought back.

The last Micro Live in the present series appeared at the end of March

Head of Continuing Education (Television) at the BBC David Hargreaves said "This season of Micro Live was its third We have decided not to plan a fourth for next winter

We want to pause, take stock and think about how we ought to be making the best contribution to our understanding of information technology in the future

Derek Meakin head of Database Publications said "Micro Live has played a leading role in introducing the delights of computing to an ever growing audience

To kill the series now, when so many exciting developments are taking place in the whole world of microcomputing, is a retrograde step

Programme director David Allen said he appreciated Database's concern

It is a very important area which needs to have continuing exposure on television

"There is a job to be done in keeping the subject in the general public's eye because it is important for the community and consumer in so many ways"

So Atari User readers it's time to play your part If you want to help save Micro Live, write to The Controller BBC 2 TV Centre, Wood Lane, London W12

Micro Live presenters Ian McNaught Davies, Lesley Judd and Fred Harris

Youth club runs an Atari micro workshop

A LONDON youth club that uses Atari micros to take computing to the community is appealing for support so it can continue its work

Honor Oak Youth Club in Lewisham needs £5 000 for projects it hopes to carry out this year

After being approached by the Lewisham youth service last year it provided a workshop with computing facilites for 20 local youth groups

Machines used in the project included two STs three 130XEs and eight 800XLs some owned by the club and the others borrowed from various sources Manpower services funded five part time computer instructors based at Honor Oak

Over a four week period more than 1 200 local youngsters were given hands on experience of micros

Twice daily sessions covered graphics, adventure program writing music composition robot building animation and pinball game construction

This summer Honor Oak wants to run a similar computer workshop but this time on four different public sites including a shopping centre and a museum to enable adults to join in as well

There are also plans this year to take Atari micros along to the local children's hospital so that long term patients there can enjoy them

"We also need to keep the momentum going at Honor Oak senior youth worker Mike Fordham told *Atari User*

The Atari micros are an invaluable tool in developing decision making, problem solving and other group exercises

If we don't get the financial help we need this year not only will our community projects suffer but we shall possibly have to retract computer activities at the club itself

On the other hand if we can find £5,000 from somewhere we can not only repeat last summer's success but can probably improve on it as well

Drive in America

ATARI has apppointed former Texas Instruments and IBM executive Jerry Brown as vice president and general manager for North American operations

The apppointment is part of a new bid to increase Atari's share of the US market, said Jack Tramiel

Personal computers are a key component in our corporate growth stategy" he said

"The 520ST and 1040ST are already among the best selling personal computers in Europe – we now plan to focus our efforts on the US and Jerry Brown will play a major role in leading that effort"

More hits

THE seventh volume of English Software's Smash Hits for the Atari 8 bit machines has been released It includes Elektraglide Colossus Chess 3 0 Blue Max and Alley Cat

English (061 835 1358) has released it on twin cassette for £9 95 and on disc for £14 95

TECHNOLOGY SO ADVANCED ...

MEMORY
- 512Kbytes RAM (520ST-M, FM)
- 1024Kbytes RAM (1040ST-F)
- 192Kbytes ROM
- 128Kbytes business plug-in ROM cartridge

ARCHITECTURE
- Motorola 68000 Central Processing Unit (CPU) with a clock speed of 8MHz
- 16-bit external data bus
- 32-bit internal data bus
- 24-bit address bus
- 8x32-bit data & address registers
- 7 levels of interrupts
- 56 instructions
- 14 addressing modes
- 5 data types
- DMA (Direct Memory Access) port
- real time clock as standard

GRAPHICS
- 32K bit-mapped display
- palette of 512 colours

Using Atari Monitors (SM 125 & 1224)
- 640x400 high resolution in monochrome
- 640x200 medium resolution - 4 colours
- 320x200 low resolution - 16 colours
- 80 column text & [illegible]

Using Domestic TV (ex 520)
- 640x200 medium resolution - 4 colours
- 320x200 low resolution - 16 colours
- 80 column x 25 line text display

SOUND AND MUSIC
- 3 programmable sound channels
- frequency programmable 30Hz to [illegible]
- programmable volume
- wave & dynamic envelope shaping
- programmable attack, decay, sustain, release
- Musical Instrument Digital Interface (MIDI)
- MIDI allows connection of synthesisers etc

STANDARD SOFTWARE
- GEM desktop + TOS operating system
- ST BASIC interpreter/language system

INPUT/OUTPUT

MIDI out	5 pin DIN 31,250 baud
MIDI in	5 pin DIN 31,250 baud
audio out	1.0V DC peak to peak, 1K ohm
audio in	[illegible]V DC peak to peak, 10K ohm
RGB monitor	1.0V DC, 75 ohm
Mono monitor	1.0V DC, 75 ohm
horizontal scan rate	35.73KHz
vertical scan rate	71.25Hz
sync	5V DC active low 3.3K ohm
modem serial	RS232C 50 to 19,200 baud
floppy disk	250 Kbits/s
hard disk	10 Mbits/s
printer	standard Atari connector
joystick	[illegible] Atari connector
cartridge port	128K capacity
RF output	for TV use

OPERATING SYSTEM
- TOS with GEM environment in ROM
- hierarchical file structure with sub-directories and path names
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]

COMMUNICATIONS
- RS-232C serial modem port
- parallel printer port
- MIDI port, also for networking use
- VT52 terminal emulation

KEYBOARD
- standard QWERTY typewriter format
- 95 full stroke keys
- 10 function keys
- 18 key numeric keypad + cursor keys
- variable auto-repeat, & key click response
- keyboard processor cuts CPU overhead

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520ST-M

The affordability of Atari computers is reflected in the price of the 520ST-M keyboard, which is just £259 (inc VAT). [illegible]

£259

1040ST-F

[illegible]

1040ST-F Keyboard	Without Monitor	£599 (inc VAT)
1040ST-F Keyboard	High res mono monitor	[illegible] (inc VAT)
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1040ST-F Keyboard	[illegible]	[illegible] (inc VAT)

[illegible]

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[illegible]

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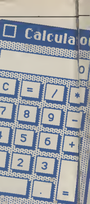
Do you already own a computer
If so, which one do you own?



Maths magic on your Atari

HAVE you ever looked on in envy as your ST owning colleagues gained access to all sorts of pop up utility programs? Well now you can have something similar on your trusty 8 bit Atari – a four function pop up calculator taking only 21 bytes of user memory

This program creates a pop up calculator which hides itself under the Basic rom on an XL or XE machine The routine which calls it is only 21 bytes long hence the calculator doesn't even remove any of your program work space

However because of the way in which the calculator uses the bank switched memory system of the XL/XE machines it will not work on an old 400 or 800

Let's take a look at how it works The program can be split into six parts

Lines 10 to 270 provide the first screen menu and check the data The program will first ask if you want to make a tape or a disc then go through the data to make sure that it's correct

If there are any discrepencies a warning message will be displayed with the relevant line number Correct the error and run the program again until it is free of errors

Lines 500 to 770 generate a cassette form of the program Lines 2000 2180 are listed to the cassette followed by the machine code data file These lines may be omitted by disc users along with the data statements 3000 3110

Lines 1000 to 1170 enable the program to check its own data – it points to any data errors and flags them The use of Get It Right! and this checker should track down any data errors

As this is a machine code program, any errors may lock your computer up with no escape except to reboot the machine This is also a good reason to save the program before you run it

Lines 2000 to 2180 constitute the data loading program for cassette users They are listed to the cassette followed by the data for the calculator and a short machine code loader

This loader is poked into page 6 and puts the calculator data under the Basic rom The program then deletes itself from memory These lines may be omitted by disc users

Lines 4000 to 4340 create the disc version First an AUTORUN SYS file is created This is a three part file consisting of a program to turn the Basic rom off the calculator in standard load format and a program to turn the Basic rom back on

After this is created a program called CALC is written to the disc Calling CALC from the Dos menu (menu option L) will allow you to run the calculator directly These program lines may be omitted by cassette users along with the data statements lines 3500 3999

Lines 5000 to 5050 displays three pages of user information Page 1 gives general background information page 2 describes assembler use of the calculator and page 3 shows a program to run the calculator from Basic.

Loading the calculator is a little different depending on whether you are working with cassette or disc Disc users should simply boot the machine with the disc containing the AUTORUN SYS file in the drive, which will install the calculator

It is possible to append another machine code program to the back of this one – for example an AUTORUN SYS that runs a Basic program All you need do is rename the original AUTORUN SYS as TEMP then create the calculator AUTORUN SYS and append your renamed file to the end of it

Cassette users should ENTER and then run the tape created by the program we have listed This will load the data and NEW itself leaving the calculator ready for use

From Basic, a small machine code program needs to be run to call the calculator Program II demonstrates one such technique

Lines 10000 to 10020 hold the necessary code and this data can easily be placed into a string for convenience The code can equally well be poked into page 6 (1536 onwards) and be run with **X=USR(1536)**

This is more useful when working in direct mode while strings are better for use within a program as they leave page 6 free From a machine code program just skip the initial PLA (104) and JSR to the start of the code

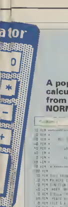
The calculator doesn't offer anything fancy just the basic number keys and the + – * / function keys

To clear an input error press E to clear the calculator completely press A and to quit back to Basic press Q

If a result is too large OVER RANGE will show in the display It will do continuous calculation (such as 2 * 3 + 56 + 3 – 5) but it won't show powers (1 3 E 14) Results are not stored anywhere and so will have to be written down

Operation is protected from the BREAK key but SYSTEM RESET will dump you back into Basic at the READY prompt Division by ZERO is not trapped and thus can give some odd results

Perhaps you might like to consider modifying the routine to patch into the screen editor device handler to allow you to simply type CALC at the prompt instead of the USR call Let us know how you get on!



A pop up calculator from ALAN NORMAN

[illegible]

```
10 REM ****************************
20 REM *                          *
30 REM *     POP UP CALCULATOR    *
40 REM *                          *
50 REM *        WRITTEN BY        *
60 REM *                          *
70 REM *        ALAN NORMAN       *
80 REM *                          *
90 REM ****************************
100 REM
110 REM TH[illegible] PROGRAM [illegible] REA[illegible]
120 REM MACHINE C[illegible]
130 REM [illegible]NCTION [illegible] DOWN
140 REM [illegible]
150 REM [illegible]
160 REM CREATE EITHER AN [illegible]
170 REM [illegible]TILE & A [illegible] RUN [illegible]
180 REM [illegible]
190 REM
200 REM [illegible]
210 REM
[illegible]
[illegible]
[illegible] ALAN NORMAN [illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible] 300
[illegible] THEN 4000
[illegible] E TE VERSION
[illegible] RESTORE 1000
[illegible]
[illegible]
[illegible]
[illegible]
[illegible] ,1000,2200
[illegible] RESTORE 10000
[illegible] PLAY & RE [illegible]
[illegible]
[illegible] READ A [illegible]
[illegible] READ S2 [illegible]
[illegible] READ E [illegible]
[illegible]
[illegible]
[illegible] THEN READ A
[illegible]
[illegible]
[illegible] 1000
[illegible]
[illegible]
[illegible]
[illegible]
720 READ A IF A>255 THEN READ A
730 PUT #1,A
740 NEXT L
750 CLOSE #1
760 ? "CASSETTE FILE FINISHED":FOR I=1
 TO 500:NEXT I
770 GOTO 5000
780 END
1000 B=0:REM DATACHECK
1010 RESTORE 1500+B
1020 READ S:READ E
1030 IF S=999 THEN 1180
1040 RESTORE S
1050 FOR LINE=S TO E STEP 10
1060 POSITION 2,20:? "CHECKING LINE ";
LINE
1070 TOT=0
1080 FOR I=1 TO 20
1090 READ A:IF A>255 THEN POP :GOTO 11
30
1100 TOT=TOT+A
1110 NEXT I
1120 READ A
1130 IF A<>TOT THEN ? "DATA ERROR IN L
INE ";LINE:STOP
1140 NEXT LINE
1150 B=B+10:GOTO 1010
1160 ? "DATA OK"
1170 RETURN
1500 DATA 10000,10100
1510 DATA 11000,11010
1520 DATA 12000,12020
1530 DATA 999,999
2000 REM CALCULATOR LOAD PROGRAM
2010 DIM CALC$(2000)
2020 C=ADR(CALC$)
2030 ? CHR$(125):? "[illegible] PR[illegible]SS RETURN"
2040 OPEN #1,4,0,"[illegible]
2050 INPUT #1,ED
2060 FOR I=0 TO ED
2070 GET #1,A:POKE C+I,A
2080 NEXT I
2090 WAIT [illegible]1,ED
[illegible] FOR I=0 TO [illegible]
[illegible] GET [illegible]A:POKE 1536+I,A
[illegible] NEXT I
[illegible] CLOSE #1
[illegible] X=USR(1536[illegible])
[illegible] [illegible]L DONE [illegible]HIS PROGRAM WILL [illegible]
[illegible] [illegible]JES [illegible]
[illegible] FOR I=1 TO 500:NEXT I
[illegible] [illegible]
[illegible] NEW
[illegible] [illegible] CASSETTE VERSION
[illegible] [illegible] TIME [illegible]
[illegible]
[illegible] [illegible] BLANK TAPE [illegible]
[illegible]
[illegible] [illegible]
[illegible] [illegible] ENTER
[illegible]
[illegible] [illegible] THE PROGRAM [illegible]
[illegible]
[illegible] [illegible] USE
[illegible]
[illegible]
[illegible] [illegible] THE PROGRAM
[illegible]
[illegible]
[illegible]
[illegible]
[illegible] [illegible] HERE
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible] VERSION
4000 RESTORE 2500
4010 ? CHR$(125):FOR [illegible]
[illegible] NEXT I
4020 INPUT A$
4030 ? "[illegible] NOW WRITING [illegible]
WAIT"
4040 TRAP 4050:GOTO 4040
4050 CLOSE #1:? "[illegible]
DIRECTED, ? MISSING,[illegible]
NNECTED"
4060 ? "PLEASE [illegible]URE AND PRESS [illegible]
4070 INPUT A$
4080 GOTO 4040
4090 OPEN #1,8,0,"D:AUTORUN[illegible]
4100 RESTORE 10000
4110 FOR LINE=10000 TO [illegible]
4120 FOR I=1 TO 21
4130 READ A:IF A>255 THEN [illegible]
[illegible]
4140 PUT #1,A
4150 NEXT I
4160 NEXT LINE
4170 CLOSE #1
4180 ? "AUTORUN.SYS CREATED":? "NOW C
REATING CALC":? "PLEASE WAIT"
4190 TRAP 4200:GOTO 4240
4200 CLOSE #1:? "THIS DISK IS WRITE PR
OTECTED, ? MISSING,NOT FORMATTED,UNCO
NNECTED"
4210 ? "PLEASE CURE AND PRESS RETURN"
4220 INPUT A$
4230 GOTO 4190
4240 OPEN #1,8,0,"D:CALC"
4250 RESTORE 11000
4260 FOR LINE=11000 TO [illegible] STEP 10
4270 FOR I=1 TO 21
4280 READ A:IF A>[illegible] THEN POP :GOT[illegible]
10
4290 PUT #1,A
4300 NEXT I
4310 NEXT LINE
4320 CLOSE #1
4330 ? "CALC CREATED":FOR I=1 TO 500:
NEXT I
4340 GOTO 5000
4999 REM USE FROM BASIC
5000 RESTORE 5500
5010 FOR PAGE=1 TO 3
5020 ? CHR$(125):FOR [illegible]
ES:NEXT I
5030 INPUT A$
5040 NEXT PAGE
5050 ? CHR$(125):END
5500 DATA [illegible] THE CALCULATOR FROM [illegible]
[illegible]
5510 DATA [illegible] THE CALCULATOR [illegible]
```

```
NDER
5520 DATA THE BASIC ROM AND STARTS AT
$A000 ,
5530 DATA 40960 dec  ANY MEANS OF ACCE
SSING
5540 DATA THE CALC  INVOLVES TURNING O
FF THE
5550 DATA BASIC ROM THEN JSR VIA $A000
 AND
5560 DATA ON RETURN REENABLE BASIC AND
 RTS TO
5570 DATA THE CALLING PROGRAM
5580 DATA ,,,,, THE NEXT PAGE CONTAINS
 AN ASSEMBLY
5590 DATA LANGUAGE PROGRAM WHICH IS MO
VABLE
5600 DATA THIS IS ACTUALLY THE SOURCE
CODE
5610 DATA OF A CALC EXCEPT FOR THE FIR
ST PLA
5620 DATA ,,PRESS RETURN FOR THE NEXT
PAGE
5630 DATA ASSEMBLY LANGUAGE PROGRAM
5640 DATA ,10  *=$0600    ASSEMBLE FRO
M
5645 DATA 20 PORTB $D301 ROM SWITCH AD
DRESS
5650 DATA 30  PLA         ONLY NEEDED F
ROM BASIC
5660 DATA 40  LDA PORTB
5670 DATA 50  ORA #2      TURN OFF BASI
C ROM
5680 DATA 60  STA  PORTB AND ENABLE TH
E RAM
5690 DATA 70  JSR $A000   START THE CAL
C
5700 DATA 80  LDA PORTB
5710 DATA 90  AND #253    TURN OFF RAM
5720 DATA 100  STA PORTB AND ENABLE BA
SIC
5730 DATA 110  RTS        RETURN TO PRO
GRAM
5740 DATA ,LEAVE OUT LINE 30 AND ASSEM
BLE TO
5750 DATA PRODUCE  CALC
5760 DATA TO RUN FROM BASIC A SMALL ST
RING MUST
5770 DATA BE MADE THEN CALLED WITH A U
SR
5780 DATA ROUTINE  A SUGGESTED ROUTINE
 IS ON
5790 DATA THE NEXT PAGE ,,PRESS RETURN
5800 DATA BASIC PROGRAM LISTING
5810 DATA ,ADD THESE LINES TO YOUR BAS
IC PROGRAM
5820 DATA ,10 DIM ML$(22)
5830 DATA 20 RESTORE 10000
5840 DATA 30 FOR I=1 TO 21 READ A
5850 DATA 40 ML$(I,I) CHR$(A) NEXT I
5860 DATA 50 GOSUB 1000 REM CALL CALC
5870 DATA 1000 X=USR(ADR(ML$))
5880 DATA 1010 RETURN
5890 DATA 10000 DATA 104 173 1,211,9 2
,141,1
5900 DATA 10010 DATA 211,32 0,160,173
1 211,41
5910 DATA 10020 DATA 253 141,1,211 96
5920 DATA ,REPLACE THE   WITH COMMA S
GOSUB 1000
5930 DATA RUNS THE CALC  ALL THE LINE
NUMBERS
5940 DATA CAN BE CHANGED  JUST REMEMBE
R TO
5950 DATA CHANGE RESTORE AS WELL
5960 DATA ,HAPPY CALCULATING,PRESS RET
URN TO END
10000 DATA 255,255,0,6,0,6,173,1,211,9
,2 141,  211,96,224,2,227,2,0,1832
10010 DATA 0,255,255,0,160,29,166,32,1
66,160,32,86,160,32,17,160,76,194,160,
32,2102
10020 DATA 127,160,96,0,160,0,162,0,18
9, 97,163,72,41,96,201,0,208,0,104,0,1
991
10030 DATA 86,76,52,160,201,32,208,6,1
04,233,32,76,52,160,201,65,240,244,165
,157,2488
10040 DATA 85,85,232,208 24,192,16,208
,215,24,160,0,173,53 160,105,24,141 53
,160 2518
10050 DATA 173,54,160,105,0 141,54,160
,224,240,208,192,86,160,0,162,0,189,85
,85,2489
10060 DATA 157 213,164,232,208,24,192,
16,208,243 24,160,0,173,91,160 105,24,
141,91 2619
10070 DATA 160 175,92 160,105,0,141,92
,160,224,240,208,220,96,160,0,162,0 18
9 213,2795
10080 DATA 164,157,85,85,232,208,24,19
2,16,208,243,24,160,0,173,135,160, 85,
24,141,2520
10090 DATA 135,160,173,136,160,105,0,1
41,156,160,224,240,208,220,96,160,86,5
6,105, 5,2723
10100 DATA 141 53,160,141,91,160,141,1
35 160,165,89,105,0,141,54,160,141,92
160,141,2450
10110 DATA 136,160,96,32,202,160,76,25
3,160,169,0, 41,229,165,141,221,165,16
1,250,165,3052
10120 DATA 142 156,163 141,252 165 14
,19 164,32,169,163 32,122 163   ,135,1
63,167,0,2477
10130 DATA 142,19,166,160,91 169,178,1
45,96,200,192,111,200,249,169,0 141,23
1,165 96,2027
10140 DATA 169,255,141,252,2,32,240,24
2 20  81,200,3,76,12,160,72,173,251,16
3 20  2924
10150 DATA 0 240 3,32 202, 60,104,201,
45,201,3,32,202,160,20 ,43,208,3,76,30
 2785
10160 DATA 166,201,41,240,19,201,43,24
0 15,20  45 20   ,76,140,163,201,42,24
0 4,2513
10170 DATA 201,47,208,3 76,81,162,201,
46,240,43,201,48 240 39,201 50 240,35,
201,2586
10180 DATA 51 240, 1,201,52,240,27,20
,53,240,23,201,54,240,19,201 55 240,15
,201 2565
10190 DATA 56,240,11,201,57,240,7,201,
46,240,6,76 253,160,76,125 161 205 19
1 6 2546
10200 DATA 240 245 141 19 166 76,117 1
61,162 232 165 102 1  208 3,76,253, 60
,230,232,3107
10210 DATA 165,17  208,165, 72,0,208,5
3,160,9,42,46, 45 165,46,244,165,46,24
3,165,2759
10220 DATA 46,242,165,46,241 165,46,24
0,165,46,239,165,46,238,165,46,237,165
,46,236,2985
10230 DATA 165,46,235,165,46 234,165,4
6,233,165,136,192,0 205,211,32,251,161
,76,253,3020
10240 DATA 160,160,0,42,46,10 166,46 9
,166,46,8,166,46 7,166,46,6,166,46,161
6
10250 DATA 5,166,46,4,166,46,3,166 46,
2,166,46 1,166,46,0,166,46,255,165 170
7
10260 DATA 46,254,165,136,192,0,205,21
1,32,251,161,76,253,160,24,165,88,105
98 141,2768
10270 DATA 28,162 165 89,105,0,141,29
162,172,229,165 162,12, 89,233,165,19
,0,240,2848
10280 DATA 5,189,254,165,105,85,157 87
,85,202,224,0 208,236,96,174,229, 65,2
24,0,2696
10290 DATA 208,19,169,0,141 272, 85,32
 189,163,169,0 141 19,166,17,251,16 ,7
6,253 2586
10300 DATA 160,169,0 141,232 165,32,12
2,163,169,0,141,19,166,32,251,161,76,2
53,166,2812
10310 DATA 162,0,142,19,166,1 4,230,16
5,224,0 240 3,76,122,162,201,61 240,19
,141,2547
10320 DATA 230 165 169 1,141,279,165,1
69,0,141 232,165,97,231,160,76,253,160
,76,198 297
10330 DATA 160,141,196,165,32 46,210,3
2,78,216,169,254,133,243, 69,165,133
44,169,0,2077
10340 DATA 133 242,32,0,216 3 ,112 2.1
,32,40 210 169,233,133,243 169,245,153
 244 166,3034
10350 DATA 0,133,242,32,0,216, 73,218,
185 201,42,240,26,201,43 240,18 201 45
,240,2658
10360 DATA 12,32,40 210,76 203 162,32
107,216,78,203,162,32,96,210 78,203,16
2,32,2756
10370 DATA 219 240,32 230,234 32,107,1
65,32 127,163,32,135,163,169,127,141 2
24,162,141,2830
10380 DATA 240,162,193,127,5,201,0,240
,4,20  48,208,0,230,224,162,238,240,16
2,76,2974
10390 DATA 232 163 162 0,160,0,184,127
,5  2 41,120,181,120,208,2,160,255,104
 41,2120
10400 DATA   7 201,69,208 25 32,155,16
3, 67,255,237,169,70 166,157,175,163,2
24 10,208,2471
10410 DATA 245 169 1,141,231,165,169,3
2 160,255,157 175 163 232,192 255,208,
244  02  60,3516
10420 DATA 17,139,175,163,153,233,165,
 24,0,240,5,20  ,136,78,46,163,173,196,
163,201,2915
10430 DATA 61 240 25 141 230 165,169,0
,141,196 163 141 232,165,141,229,165,3
2,251,161,3042
10440 DATA 185 1,141,2 9,165,76,253,16
0,169,1,141,231,165, 69 0 141,220 165
52 251,2888
10450 DATA 161,76,257 160,169,32 162,0
 157 233,165, 32,274,14  80,240 96,169
,32,162,2953
10460 DATA 0 157 254  45 252 225  4,20
0,240,96,169,32 162 0,157,175,163,233,
224,74 2921
10470 DATA 208,240,96 174, 32 165 224,
0,201,16,174,229 165,224 0,240,10 174,
250,165,3100
10480 DATA 224,0,208,3 76,81,162,76,12
5,161,46,48,48,48,48,48,48,48,48,48,45
96
```

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10490 DATA 48,48,48,48,48,48,48,48,48,48,
48,24,0,6,13,13,13,13,13,13,13,625
10500 DATA 13,13,13,13,13,13,13,7,22,3
2,32,32,32,32,32,32,32,32,32,32,472
10510 DATA 32,32,32,2,22,160,160,160,1
60,160,160,160,160,160,160,160,160,160
,160,2,2362
10520 DATA 22,32,32,32,32,32,32,32,32,
32,32,32,32,32,32,2,22,32,65,83,852
10530 DATA 67,65,32,32,32,69,61,67,69,
32,32,2,22,32,81,61,69,84,73,84,1070
10540 DATA 32,32,32,32,32,32,32,2,22,3
2,32,32,32,32,32,32,32,32,32,32,608
10550 DATA 32,32,32,2,22,32,32,103,32,
104,32,105,32,32,175,32,32,32,2,114
9
10560 DATA 22,32,32,32,32,32,32,32,32,
32,32,32,32,32,32,2,22,32,32,108,736
10570 DATA 32,181,32,182,32,32,178,32
32,32,32,2,22,32,32,32,32,32,32,32,183
7
10580 DATA 32,32,32,32,32,32,32,2,22,3
2,32,177,32,178,32,179,32,32,173,32,11
79
10590 DATA 32,32,32,2,22,32,32,32,32,3
2,32,32,32,32,32,32,32,32,32,2,578
10600 DATA 22,32,32,32,32,32 32,32,32,
32,32,32,32 32,32,2,7,14,14,14,521
10610 DATA 14,14,14,14,14,14,14,14,14,
14,14,6,32,32,32,32,32,32,32,32,416
10620 DATA 32,32,32,32,32,32,32,32,32,
32,32,32,32,32,32,32,32,32,32,32,640
10630 DATA 32,32,32,32,32,32,32,32,32,
32,32,32,32,32,32,32,32,32,32,32,640
10640 DATA 32 32,32,32 32,32,32 32,32,
[illegible],640
10650 DATA [illegible],32,32,32,32,
32,32,32,[illegible],640
10660 DATA [illegible],32,32,
32,32,32,[illegible],640
10670 DATA [illegible],32,32,
32,32,32,32,[illegible],32,640
10680 DATA 32,32,[illegible],32,32,
32,32,32,32,[illegible],32,640
10690 DATA 32,32,[illegible],32,
32,32,32,32,[illegible],640
10700 DATA 32,32,[illegible],32,32,
32,32,32,32,32,[illegible],640
10710 DATA 32,32,[illegible],32,32,
32,32,32,32,32,32,[illegible],32,640
10720 DATA 32,32,[illegible],32,
32,32,32,32,[illegible],32,640
10730 DATA 32,32,[illegible],32,32,
32,32,32,32,[illegible],32,640
10740 DATA 32,32,[illegible],32,32,
32,[illegible],32,640
10750 DATA 32,[illegible],32,32,
32,32,32,32,32,[illegible],640
10760 DATA 32,32,32,32,32,32,[illegible],32,32,
32,32,32,32,32,32,[illegible],0,0,0,0,[illegible]
10770 DATA 32,[illegible],32,32,
32,32,32,32,32,[illegible],640
10780 DATA [illegible],32,32,
32,[illegible],640
10790 DATA [illegible],32,32,82,6
5,78,71,69,255,255,[illegible],1480
10800 DATA [illegible],1,211,96,2
26,2,227,2,0,6,1410
11000 DATA 255,255,0,6,16,6,173,1,211,
0,2,141,1,211,32,0,160,[illegible],1,211,1857
11010 DATA 61,253,141,[illegible],211,96,226,2,2
27,2,0,6,1204
12000 DATA 255,255,0,6,51,6,173,1,211,
0,2,141,1,211,104,104,162,23,6,184,180
4
12010 DATA 141,22,6,162,0,160,0,185,85
,85,153,0,160,200,192,0,208,245,232,23
0,2474
12020 DATA 23,6,230,26,6,224,0,208,232
,173,1,211,63,253,141,1,211,96,2099
```

Get it right!

LINE	CHSUM	LINE	CHSUM	LINE	CHSUM
10	[illegible]	20	0	30	7
40	3964	50	4891	60	358
70	4821	80	350	90	4275
100	874	110	5967	120	5614
130	4174	140	4897	150	6491
160	6597	170	5813	180	6090
190	871	200	8184	210	871
220	2347	230	3737	240	9953
250	7856	260	9938	270	6742
280	1925	290	3337	300	4250
500	2276	510	7857	520	1844
530	7731	540	3304	550	2458
560	7751	570	2670	580	4916
590	5354	600	5094	610	1704
620	2882	630	5112	640	1468
650	1345	660	2468	670	6943
680	5356	690	5094	700	1784
710	2882	720	5112	730	1468
740	1345	750	1559	760	9213
770	1856	780	836	1000	3232
1010	2773	1020	2821	1030	3873
1040	2148	1050	6355	1060	7134
1070	1126	1080	2272	1090	6780
1100	2869	1110	1345	1120	1163
1130	9424	1140	2227	1150	2743
1160	1824	1170	1498	1500	2829
1510	2597	1520	2605	1530	2331
2000	3746	2010	2485	2020	2214
2030	5469	2040	2658	2050	2031
2060	2408	2070	3404	2080	1345
2090	2031	2100	2406	2110	3686
2120	1345	2130	1559	2140	2429
2150	10165	2160	3092	2170	1737
2180	903	3000	6902	3010	7520
3020	7157	3030	7169	3040	6540
3050	7212	3060	7704	3070	5591
3080	7484	3090	7092	3100	7575
3110	3725	3500	6105	3510	8866
3520	7795	3530	8032	3540	6425
3550	8469	3560	2235	3570	8875
3580	8436	3590	8522	3600	7628
3610	4339	3620	3725	3999	3184
4000	2281	4010	7838	4020	1844
4030	7568	4040	3754	4050	10143
4060	6508	4070	1844	4080	1870
4090	5105	4100	2458	4110	5204
4120	2276	4130	6804	4140	1468
4150	1365	4160	2227	4170	1559
4180	12019	4190	3724	4200	10143
4210	6508	4220	1844	4230	1603

LINE	CHSUM	LINE	CHSUM	LINE	CHSUM
4240	3409	4250	7459	4260	[illegible]
4270	2276	4280	[illegible]	4290	1468
4300	1345	4310	2227	4320	1559
4330	7208	4340	1056	4999	3454
5000	2291	5010	2793	5020	7848
5030	1644	5040	2183	5050	2709
5500	7640	5510	7796	5520	7267
5530	7088	5540	8075	5550	6974
5560	8152	5570	5174	5580	9097
5590	8183	5600	7836	5610	8166
5620	7527	5630	6339	5640	8135
5645	7466	5650	7388	5660	3286
5670	6659	5680	7089	5690	8282
5700	3294	5710	5303	5720	6775
5730	6856	5740	7743	5750	3861
5760	8689	5770	7047	5780	8269
5790	6650	5800	5464	5810	9268
5820	3388	5830	3907	5840	5189
5850	5740	5860	5724	5870	4727
5880	3136	5890	6459	5900	6784
5910	5379	5920	9328	5930	7936
5940	7521	5950	5802	5960	9132
10000	5961	10010	11785	10020	11081
10030	12110	10040	12054	10050	11691
10060	12105	10070	12762	10080	12217
10090	12547	10100	12343	10110	12102
10120	12538	10130	12664	10140	12205
10150	11383	10160	11763	10170	11770
10180	11997	10190	11039	10200	12582
10210	12483	10220	12519	10230	12418
10240	10851	10250	10826	10260	12351
10270	12279	10280	12337	10290	12212
10300	12749	10310	12031	10320	12435
10330	12881	10340	12509	10350	11989
10360	12084	10370	12865	10380	12185
10390	11753	10400	12951	10410	12966
10420	12485	10430	12868	10440	12294
10450	12435	10460	12329	10470	12380
10480	11078	10490	10896	10500	9991
10510	12102	10520	10032	10530	10456
10540	9983	10550	10645	10560	10280
10570	10599	10580	10891	10590	9652
10600	9879	10610	10851	10620	10212
10630	10212	10640	10212	10650	10212
10660	10212	10670	10212	10680	10212
10690	10212	10700	10212	10710	10212
10720	10212	10730	10212	10740	10212
10750	10212	10760	9874	10770	10212
10780	10212	10790	10246	10800	7722
10810	11603	11010	6927	12000	10650
12010	11502	12020	10150		

Program II

```
10 DIM ML$(22)
20 RESTORE 10000
30 FOR I=1 TO 22:READ A
40 ML$(I,I)=CHR$(A):NEXT I
50 GOSUB 1000:REM CALL CALC
999 STOP
1000 X=USR(ADR(ML$))
1010 RETURN
10000 DATA 104,173,1,211,9,2,141,1
10010 DATA 211,32,0,160,173,1,211,41
10020 DATA 253,141,1,211,96
```

Get it right!

LINE	CHSUM	LINE	CHSUM	LINE	CHSUM
10	11441	20	[illegible]	30	347[illegible]
40	[illegible]	50	4973	999	1198
1000	2091	1010	1694	10000	4354
10010	4021	10020	3352		

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CONSOLE KEY INTERRUPT DRIVER

from STEVEN CHEUNG

THIS very interesting little program written entirely in machine code, enables you to adjust various system control registers by using the Console keys – Start, Select, Option and Help. As written it will only function fully on an XL or XE although the luminance change command should work on older systems.

Type in the Basic program as listed and RUN it. This will then POKE the data for the interrupt routine into page 6, then enable it with USR(1536). You may now delete the Basic program by typing NEW and the machine code will continue to run until you press Reset or turn the computer off.

Lines 10 and 20 translate the compressed machine code data into valid numbers ready to be POKEd into location 1536 onwards.

Lines 30 and 40 contain the actual machine code data while Line 50 starts the program running with A=USR(1536) and also contains the last few bytes of data.

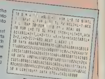
After enabling it you may operate the routine by pressing the following keys:

Start Toggles the international character set on and off

Select Cycles through the various text luminance values

Option Toggles the keyboard click on and off

Help Toggles the left margin between 0 and 2 (in the same manner as POKE 82,0 and POKE 82,2 would)



```
10 DIM H[illegible] A$[illegible] FOR L=0 TO 9 H(L
[illegible] NEXT L FOR L=17 TO 22 H(L)=L-7 NEX
T L TRAP 30 FOR [illegible] READ A$
20 FOR L=0 TO 52 POKE 1536+L+L1*53,H(A
SC(A$(L*2+1,L*2+1))-48)*16+H(ASC(A$(L*
2+2,L*2+2))-48) NEXT L NEXT L1
30 DATA 68A907A[illegible]
11A00EA5524902A552A900[illegible]
[illegible]C5A1A0034C02E4[illegible]
40 DATA [illegible]0229[illegible]32077E4C903
C005[illegible]EEC502EEC5024C02E4[illegible]24C02E4
02C9E[illegible]49CC0[illegible]F402[illegible]C02E4A9E[illegible]7A0F4
50 A=USR(1536) DATA [illegible]E4[illegible]C02E40000
```

Get it right!

LINE	CHSUM	LINE	CHSUM	LINE	CHSUM
10	18748	20	1[illegible]945	30	1898[illegible]
40	18917	50	5346		

DECIMAL TO HEXADECIMAL CONVERTER

from G. WATSON

This five liner will accept a decimal number from 0 to 65535 and convert it into its hexadecimal equivalent instantly. After it has been POKEd into memory the routine may be accessed at any time by using

A=USR(1600,number)

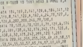
For those of you interested in machine code it works in the following manner.

The number to be converted is divided by 256 and pushed on to the stack by the USR statement. The low byte goes on first then the high byte.

The high byte is then pulled off the stack by the routine and divided by 16. This number is then used as an index through a table of Ascii values of the hexadecimal numbers from 0 to F. This resultant digit is then printed to the screen by using the rom routine at address $F2B0. Please note that this routine may be located in a different place on older machines.

The remainder of the division is then used to index through the same table and the number is again printed in the same way. The low byte is then pulled off the stack and the process is repeated.

```
PRINT  =$F2B0
       *=$0640
START  PLA
       LDA #$02
       STA COUNT
LOOP1  PLA
       STA ONE
       LDA #$00
       STA TWO
       LDX #$04
LOOP2  CLC
       LSR ONE
       ROR TWO
       DEX
       BNE LOOP2
       LSR TWO
       LSR TWO
       LSR TWO
       LSR TWO
       LDX ONE
       LDA TABLE X
       JSR PRINT
       LDX TWO
       LDA TABLE X
       JSR PRINT
       DEC COUNT
       BNE LOOP1
       RTS
  ONE  BYTE $FF
  TWO  BYTE $FF
COUNT  BYTE $FF
TABLE  BYTE $30 $31 $32 $33 $34 $35 $36 $37
       BYTE $38 $39 $41 $42 $43 $44 $45 $46
```



```
10 FOR X=1600 TO 1681 READ A POKE X,A
NEXT X
20 DATA 104,169,2,141,129,6,104,141,12
7,6,169,0,141,128,6,162,4,24,78,127,6,
110,128,6,202,208,246,78,128,6
30 DATA 78,128,6,78,128,6,78,128,6,174
,127,6,189,130,6,32,176,242,174,128,6,
189,130,6,32,176,242,206,129,6,208
40 DATA 200,96,255,255,255,48,49,50,51
,52,53,54,55,56,57,65,66,67,68,69,70
50 ? "ENTER DECIMAL NUMBER",INPU
T DEC ? " ";DEC;" IN HEX IS $";A=US
R(1600,DEC) ?
```

Get it right!

LINE	CHSUM	LINE	CHSUM	LINE	CHSUM
10	7619	20	154[illegible]	30	16[illegible]93
40	18913	50	15[illegible]00		

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ATS

MEGAPAC

520 STFM SYSTEM BY A.S.&T.

The new 520 STFM from ATARI has been an instant hit since [illegible] announcement. The design has gained from paper plans with earlier ST and STM much new and the result is a practical and superbly engineered computer that will easily find its place in your home as well as in your business.

MEMORY:

The basic 520 STFM has 192K bytes of ROM, an optional 128K bytes of plug in ROM cartridges and 512K of RAM. The MEGAPAC 520 STFM has bigger memory — a full ONE MEGABYTE of RAM like the 1040 ST!

DISC DRIVES:

The basic 520 STFM has a built in single sided disc drive. The MEGAPAC 520 STFM comes with two drives, one internal and one external. The latter is double sided offering twice the capacity (720K of the [illegible] drive(360K). Your disc [illegible] can be cut by almost half when [illegible] with [illegible] of basic 520 STFM users.

PROCESSOR:

The [illegible] (CPU) is a Motorola 16/32 bit 68000 chip running at a clock speed of 8 MHz. It is further enhanced by Atari's own [illegible] Direct Memory Access (DMA) channel for fast data transfer with other peripherals such as the ATARI SH204 Winchester drive the Atari Laser printer (see table once) and a real time clock.

DISPLAY:

The 520 STFM can display 40 or 80 column text on any domestic TV or colour monitor such as the Philips CM8533 or the dedicated ATARI SM125 high resolution monochrome monitor. Graphics 640 × 400 pixels on the SM125, 640 × 200 pixels in 4 colours or 320 × 200 pixels in 16 colours on a colour monitor or TV. The colour palette has a full 512 possible colours. Some ATARI software [illegible] uses the exceptional display hardware to [illegible] graphics with up to 256 colours at once.

MIDI INTERFACE:

The 520 STFM has 3 programmable sound voices and a Musical Instrument Digital Interface (MIDI) to allow direct connection to a wide range of musical organs and synthesizers such as the Casio CZ230S.

MOUSE:

The 520 STFM has its own dedicated mouse as part of its standard hardware.

PERIPHERAL CONNECTORS:

The 520 STFM can be easily expanded by plugging in add-ons through its ports. They will accept printer (Centronics port) Modem (RS232 port) musical instruments (MIDI port) joysticks (joystick port) and fast intelligent devices such as network Winchesters (logic [illegible] (SCSI) port.

BUILT-IN SOFTWARE IN ROM:

The 520 STFM [illegible] in ROM. This [illegible] GEMDOS [illegible] which is now [illegible] and GEM [illegible] Graphic Environment [illegible] drawing [illegible] messages [illegible] the electronic [illegible] keyboard [illegible] commands.

SOFTWARE ON 5 DISCS:

The MEGAPAC 520 STFM comes with 5 discs containing an impressive [illegible] standard

Disc number 1 [illegible] language

Disc number 2 [illegible] DOODLE + MEGAROIDS and STWRITER [illegible] program

Disc number 3 contains Neochrome a painting program and demo pictures

Disc number 4 [illegible]

Disc number 5 [illegible] Manual

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6 MEGAPAC 520 STFM	£539.00
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1 Casio [illegible] 305	£299.00
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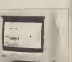

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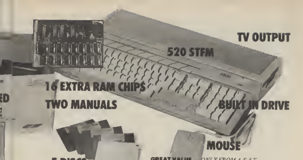
SC1224 12 MED RES COLOUR



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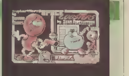

Program Space Lobsters
Price £7 95 (cassette) £9 95 (disc)
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I'VE seen most of the science fiction films Hollywood has churned out over the last few years I've also spent many a happy evening absorbed in the seemingly endless re runs of Star Trek and the weird world of the Twilight Zone

But never have I come across Space Lobsters in any of these fantasies

In this game Captain Crumble has to fight off these spacial crustaceans and other guardians of the Colossus spaceship to discover hidden computer codes to facilitate his escape should he become overwhelmed

With limited ammunition and via the use of teleport booths Captain Crumble (surprisingly quite a tough cookie, really) travels through the various corridor levels of the ship exploring more than 150 screens in his quest to find the 10 elusive computer codes

Hindering his progress are the roaming Robo Droids ancient descendants of the Rubu Druids and famed for their problems with vowel pronunciation (and spelling) – but that's another story

Captain Crumble has to blast his way from level to level occasionally trading points for supplies on his way

Clever use of split screen graphics has produced a mixture of hi res and character-based graphics with good animation of Captain Crumble being the main feature of the game

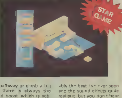
Excellent title music and good sound effects serve to confirm the view that there is still a market for reasonably priced software although the charts seem to indicate that true budget Atari software is now the order of the day

But if you are looking for a good animated blast 'em run away turn around and shoot'em again style game with a mild degree of tactics to boot then Space Lobsters might just be your cup of soup

Victor Leszlo

Sound	7
Graphics	7
Playability	8
Value for money	7
Overall	7

Against the clock



Program Spindizzy
Price £9 95 (cassette) £14 95 (disc)
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Tel 0703 229694

SPINDIZZY is a Marble Madness clone which involves guiding an inverted pyramid around the different screens mapping them out and collecting any jewels along the way

You play against a clock which doesn't even pause when you plummet to your death – you lose a precious five seconds as well as a life

If you collect one of the many jewels strewn about the screens you gain 10 seconds and you also get a bonus of seven seconds each time you enter a new screen

Occasionally you may encounter a couple of nasty creatures who push you out of the room and zap your time avoid these at all costs

You can call up a map at any time to show you your relative position in the game any unmapped rooms mapped rooms with a jewel in and completed rooms There are more than 350 to visit

A nice feature is that if you lose sight of yourself on the screen you can turn your viewpoint round so that you can see all angles of the room or you can point yourself north

To make life on some screens a whole lot easier there are lifts which can take you up to a higher ledge which would be otherwise inaccessible without searching many other screens for a ramp

A word of warning about the lifts To get some of them to work you have to find and collect the object which is depicted on the lift's surface

When you need a bit more speed to jump over a gap in the pathway or climb a big hill there's always the speed boost which is activated by holding down the fire button This sends the pyramid flying along but it's easy to overdo it and overshoot your target or crash

Thankfully you can press the emergency stop key (the spacebar) to stop you dead on any surface with grip which excludes ice water and trampolines

Talking of trampolines you can use these to bounce over to an area impossible to reach by any other means

The 3D graphics are probably the best I've ever seen and the sound effects quite realistic but you don't hear them very often This is a shame as they enhance the game greatly Another minor grumble is that there is no music whatsoever

Despite these minor niggles this is an excellent game which will keep you coming back for more for many weeks to come

Stephen Banks

Sound	6
Graphics	10
Playability	9
Value for money	10
Overall	9

Beginners chess

Program Master Chess
Price £1.99
Supplier Mastertronic, 8-10 Paul Street, London EC2A 4JH
Tel 01 377 6880

AS far as I'm concerned no home computer should be without a chess program but cost may be a deterrent to some would be Karpovs. Attempting to fill a gap at the low cost end of the market is this no-frills chess playing program from Mastertronic.

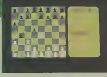
Available for the Atari 800 and 130 series Master Chess offers you the game plain and simple. Given the price you won't be surprised to hear that it has few of the extras you'll find on more expensive offerings.

The grey and green chess board fills the left two thirds of the screen while the remainder is used for entering your move and for the computer's messages.

You input your moves using standard algebraic notation via the keyboard so typing E2 E4 moves your king's pawn forward two squares. The black and white pieces are clear and easily identifiable.

At the start of a game you are asked whether you want to play black or white then you set the skill level by entering the number of seconds allowed for the computer's thinking time.

There are several options available from a separate screen reached by pressing Return when it is your turn to move. From here you can reset the skill level, set up or rearrange the board (useful for taking back mistakes or bad moves) have an action replay of the game and load, save or play a new game.



The last six moves for both sides are listed on the options screen along with a pictorial representation of all pieces that have been captured.

The program does not appear to have an openings book and can make some very strange moves on the lower response settings.

If you just want a cheap program to play against and one which is fairly easy to beat this could be just the [illegible]

[illegible] chess players [illegible] long [illegible] offers far better value for money.

Bob Chappell

Sound	5
Graphics	7
Playability	7
Value for money	5
Overall	6

Rambo in green

Program Green Beret
Price £8.95 (cassette)
Supplier Imagine Software, 6 Central Street, Manchester M2 5NS
Tel 061-832 6633

'HEEYYYY! Don't push me!' Yes, you guessed it – another Rambo type shoot 'em up. Predictably your mission is to rescue hostages captured by the enemy forces.

It's no picnic either as the enemy are out to stop you with all the armed forces they can muster.

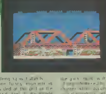
Green Beret is based on an arcade game so there are inevitably some compromises in this 8 bit conversion. But Imagine has done a pretty fine job in this its first release for the Atari in quite a long time.

During the game you progress through the scenes which scroll smoothly from right to left. Enemy soldiers run towards you from different directions intent on your capture.

Some will take pot shots at you with rifles while others try to fell you with a kung fu flying kick. You can despatch them with your knife operated by the fire button. However the response to the button is slow calling for good timing.

If you come across white soldiers and kill them you will be provided with a bazooka holding four rounds. This can be fired in either direction by pressing the spacebar at the crucial moment taking out all the men in that direction.

Some parts of the arcade game, such as the mortar crews and ground mines, seem to have disappeared. However if they had been included it might have made the game a little too difficult as Green Beret is quite challenging as it stands.



One funny moment is provided at the end of the second stage. In the arcade game you are attacked by Dobermans and Alsatian guard dogs.

The programmers have retained this feature but the attacking dogs look like emaciated Yorkshire terriers.

The background graphics are detailed and colourful and rate as excellent. However I was a little disappointed with the graphics of the figures. These were a little too blue and lacked detail.

There is no music though the game starts with a wail [illegible] by a drum rhythm which accompanies you throughout adding to the atmosphere. Sound effects are limited and could have been better.

All in all a good game which should sell well. Hopefully just the first of many conversions from Imagine.

Mark Fowlis

Sound	5
Graphics	8
Playability	8
Value for Money	7
Overall	8

Not daring enough

Program Who Dares Wins II
Price £7 95
Supplier Tynesoft Addison Industrial Estate Blaydon upon Tyne Tyne and Wear NE21 4TE
Telephone 091-414 4611

WHO Dares Wins II is very much a Commando clone – run to the top of the screen and shoot anything that moves

You start in the middle of a forest looking a bit short squat and silly – rather like Lewis Collins in the film of the same title

The term forest is perhaps a bit of an overstatement as it comprises of a sparse collection of kids lollipop trees Indeed, the graphics generally have a child-like look to them and the colours used are rather dreary too

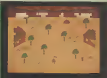
All around enemy soldiers are shooting away at random You must break through their ranks travelling up the screen towards the end of the zone a few screens further on

Apart from the trees and soldiers the scenery shows bombed-out buildings and various discarded oil drums No cover or protection is afforded by any of these objects – bullets pass straight through them all

Indeed you can even walk through some of the walls, which certainly doesn t add to the game s realism

Dodging the flying bullets you can return fire either with your gun or your pack of 12 grenades When the enemy is shot you are treated to what looks like a brief rendition of Mammy as the unfortunate soul writhes in his death throes before expiring

Further along you encounter helicopters and armoured cars There are also ponds to be avoided – you ll drown if you tumble into one Eventually you reach the end of the zone a guard post and barrier crossing



Movement is slightly on the slow side and the speed of your bullets frustratingly so Throughout the game the computer bleeps out a banal ditty, stretching the Atari s sound capabilities about as much as the visuals do its graphic abilities – not a lot

Although the game is playable to my mind there are better versions around It s not uncommon that a good game concept is spoiled by not being carried through thoroughly enough

I recently reviewed Gun Law which is almost identical to Who Dares Wins II Although by no means perfect it was altogether more pleasing and was around a quarter of the price

Niels Reynolds

Sound	*5*
Graphics	*5*
Playability	*7*
Value for money	*6*
Overall	*6*

Out in the cold

Program Winter Olympics
Price £7 95 (cassette) £9 95 (disc)
Supplier Tynesoft Addison Industrial Estate Blaydon upon Tyne Tyne and Wear NE21 4TE
Telephone 091 414 4611

WINTER Olympics from Tynesoft is another event compilation following on the heels of Summer Games Winter Games Decathlon and so on There are five events – speed skating ski slalom ski jump downhill and the Cresta Run bobsleigh

Speed skating is a straight-line race against the clock There is a computer controlled opponent in the top half of a split screen and although this may help you pace the race, it would have added more to the game to have allowed a two player option

Movement is achieved by frenetic waggling of the joystick

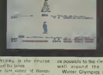
In the slalom event the scenery consisting of a rather sparsely wooded forest scrolls smoothly upwards

You steer your skier through gates marked by two poles but hitting a pole incurs a time penalty and colliding with a tree means the end of the heat

Next comes the ski jump Accelerating down the slope you press the fire button to jump, the aim being to leap as far as possible

As in the speed skating event how much you want to risk scrapping your joystick determines your terminal velocity

The downhill race is virtually identical to the slalom There are no gates to steer through but some slight deviations in the course marked by trees



The last event of Winter Olympics is the Cresta Run in which there are two views of the race

One is a plan view of the whole course by which you can see how far you have progressed The second and smaller outlook is from behind the bobsleigh looking down the ice tunnel

This is poorly done – the graphics are blocky and over simplistic and the movement jerky Speed is gained by sledging as close as possible to the rim of the wall around the bends

Winter Olympics sounds evocative of excitement daring and great fun Unfortunately Tynesoft fails to deliver as the individual games lack attention to detail and atmosphere

Niels Reynolds

Sound	*4*
Graphics	*5*
Playability	*6*
Value for money	*6*
Overall	*5*

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NEWSLETTER

Chess goes on Email

SCHOOLBOY Michael Hennigan has emerged triumphant at the end of the first major chess tournament conducted via electronic mail

Michael aged 16, from City of London School beat Aaron Summerscales 17 of Elliot School Richmond in the final of the British Chess Federation under 18 quick play individual championships

The last three rounds of the tournament which attracted 560 entrants were staged on the MicroLink system and shown move by move on national television

MicroLink provided individual electronic mailboxes for each competitor and linked them to Ceefax on BBC Television Every move in each game was shown as it happened

Moves were transmitted between opponents as MicroLink express mail messages, at the same time registering at Ceefax and with the match arbiter

It was a major test of MicroLink s speed and efficiency – the eight competitors in the quarter finals came from places as far apart as Edinburgh Cardiff Belfast and London

Lincolnshire primary school headmaster John Tonkin who organised the tournament said afterwards It was a great success Technically the MicroLink system was absolutely spot on

'MicroLink and Ceefax provided a fitting stage for our junior players to demonstrate why they are second only to the Russian youngsters in the world of chess these days

Typesetting on the line

ONLINE typesetting is coming into its own as an alternative to traditional methods and MicroLink is playing its part in this booming growth area of commercial printing

Many small businesses which require professional-quality printed material but can't afford the cost in time and money of manual typesetting are turning to firms like Wordstream for help

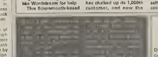
This Bournmouth-based company owned by husband and wife team David and Jackie Furlonger provides a service via electronic mail with a choice of 150 different typefaces

Wordstream is online 24 hours a day seven days a week, offering next day results at only a tenth of the cost of traditional typesetting

Eighteen months after its launch Wordstream has chalked up its 1,000th customer, and now the firm is going international via MicroLink

Primary targets are Europe, where MicroLink has many subscribers, and the USA

Specially developed MicroLink technology will enable the contents of Wordstream's mailbox to be downloaded automatically every 15 minutes of the day or night and transferred directly on to typesetting equipment for processing



Messages get a bright new look

FIVE new designs have been created for the colourful Telemessage greetings card series which is available through MicroLink and covers a variety of special events including births weddings and coming of age

Among them is a reproduction of Renoir s famous boating scene The Seine at Asnieres It replaces the longest serving Telemessage card – a pastoral scene of butterflies and flowers that has been a favourite since 1981

Telemessage now has 14 different card designs to meet a wide variety of needs like business announcements birthdays anniversaries get well soon messages and condolences

Only 13 are available to the public however – the other card is exclusive to The Queen who uses it to send her personal greetings to people celebrating their 100th birthday or diamond weddings

It costs as little as £2 20 to send a Telemessage greeting card via MicroLink

TRADE LINK

DESPITE the difficulties caused because some manufacturers refuse to trade with South Africa micro users in that country have to soldier on regardless

One of them computer consultant Steve Crawford has joined MicroLink in order to improve his links with hardware and software suppliers in Britain

When you have the situation where leading firms have cut their ties with South Africa for political reasons it is essential to explore other avenues of supply", he says

MicroLink telex and electronic mail services are the most economical and efficient methods of contact between people like myself and UK suppliers

'Current circumstances would otherwise make it impossible to obtain new or replacement hardware and software which those in favour of the boycott should remember are just as essential to the opponents of apartheid

YOUR chance to join MicroLink – turn to Page 4

Autoboot your cassette files

More on adding that pro touch to your programs from resident guru LEN GOLDING

LAST month we covered the theory behind cassette autoboots, and explained how to write and save machine code programs which will load and run automatically This month we look at a program which can convert your Basic programs to an autoboot cassette form

Conversion is actually a three stage process First you load a utility program called Creator Next you load your Basic program and call the Creator routine with a USR command This makes an entirely new cassette file which has a short machine code routine inserted ahead of your Basic program

Loading the resulting file is exactly the same as loading commercial autoboot software Switch the computer on while holding down the Start key, then hit any key when the single beep sounds Everything else is automatic and as soon as loading is complete your Basic program will run

The system works by inserting a new editor handler and putting two commands (GRAPHICS 0 and RUN) into Basic s text buffer When Basic gets control it will assume that you have typed the text line in direct mode, so it executes the commands immediately

Although this is a little more complex than using direct jumps to the Basic rom itself it ensures that the converted programs will run with all versions of Basic and thus on any Atari 8 bit computer

Back to practical matters Program I makes the Creator file When run this will make an autoboot machine code cassette – in fact you might recognise lines 10 to 140 as being identical to last month s Program III Because the program works with machine code all DATA statements must be absolutely correct or it will crash

Watch out for the three most common typing errors – using the letter O instead of zero, typing two commas with no number in between, and typing a comma at the end of a program line Be sure to save a copy before you try running it

When you re sure everything is correct Insert a new tape and type RUN Press Record and Play and then Return after you hear the usual two beeps Once completed label the finished cassette as 'Creator', and make a note that it s an autoboot format file Once this is safely in your possession Program I can be filed away as it won t be needed again

Here are the step-by-step instructions for using Creator to convert an existing Basic program into the new cassette autoboot form

- Switch power off and insert the Creator cassette
- Switch power on while holding down the Start key and hit any key when the beep sounds After the usual leader delay you will hear the Creator file loading
- CLOAD the Basic program which you want turned into an autoboot, but don t run it
- Insert a blank, fully rewound cassette and type

X=USR(1818)

- Press Record and Play and hit Return after the two beeps Your Basic program will now be written to tape in autoboot format

Remember that programs in this format cannot be loaded using any of Basic s commands – you must use the autoboot loading procedure Once in memory, though your program will behave just as though you had typed CLOAD and RUN

Now let s leave cassettes for a while and take a look at disc based programs There are two different systems available for making disc software load and run automatically – disc autoboot or AUTORUN SYS Both will work only with machine code but AUTORUN SYS can be used to load and run a Basic program, giving the effect of a Basic autoboot

Let s take disc autoboots first Since they look and behave almost exactly like the cassette autoboots which we covered last time we ll skip through the details fairly quickly

When power is switched on with a disc drive connected, there must be some autoboot information on the disc otherwise the screen will fill with BOOT ERROR messages On a normal Dos disc this autoboot system loads and initialises the DOS SYS file, but the process can be used for other things Program II shows the correct format Lines 10 to 550 form a new SAVE routine for disc which isn t part of the autoboot data itself

The first six bytes in the autoboot code (starting at line 640) are a header containing a boot flag (normally zero), the number of sectors to load the load address and finally the initialisation address The OS reads this header and stores the load address in BOOTAD (578 579) and the initialisation address in DOSINI (12 13)

It then makes a note that it's using a disc based program by storing a 1 in the BOOT? location (address 9) Once it has this information available it can load all the boot sectors into the correct addresses in memory

The next thing the OS does is to perform a JSR to BOOTAD+6, skipping over the six bytes of header data to execute the code labelled *COLDST* in our example This section will only be executed once, immediately after the sectors have been loaded and must end with CLC RTS – otherwise you will get the BOOT ERROR message

The second stage is another JSR this time to the initialisation address now given by DOSINI which sends it to our *INIT* code This section must end with RTS or the system will lock up The boot process terminates by handing control to the language or other cartridge via a JMP to the cartridge start address

If no cartridge is installed, the final JMP goes to the address stored in DOSVEC (10,11) which normally points to the self test or memo-pad routine You can change DOSVEC during the initialisation routine so that the final JMP will go elsewhere but only experienced machine code programmers are likely to use this facility as it completely bypasses Basic The second JSR and final JMP are always repeated whenever System Reset is pressed

Autoboot code is always stored on the disc starting at sector one, but none of the standard commands avail-

→

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able in the Assembler Editor cartridge or Dos utility package will create such a format automatically so we need a special machine code routine If you have an Assembler you can use the saver routine given as Program II If not the Basic version – Program III – will do exactly the same job

The disc you plan to write to must be formatted but should not contain DOS SYS In fact since the completed disc will not be in normal Dos format you should not have any files on it or you may lose some of them

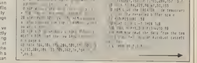
When you call the saver routine either from the assembler or by running Program III the code from *START* to *FINISH* will be written automatically to sector one Turn power off then on again and the file will load and run automatically causing the screen border to change colour

This is no big deal but once you've got this simple file working correctly there's nothing to stop you inserting much more interesting routines at *COLDST* or *INIT* Always retain the code that resets MEMLO since this ensures that your autoboot code can coexist with Basic or any other language cartridge

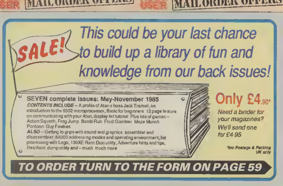
Now for the bad news – disc autoboots are a pain to use They must start on sector 1, so you can have only one per disc. They don't appear on disc directories you can't LOAD them SAVE them or LIST them in any of the conventional ways, and they won't even RUN except at power up time

Worst of all you can't use them in conjunction with Dos because only one boot program can be loaded at a time, and DOS SYS itself needs to boot into memory So if your software needs to communicate with the disc drive after initial power up forget it – Unless of course, you're prepared to write your own disc management routines

● *The alternative is to use AUTORUN SYS, which is a much friendlier system, and better suited to the needs of Basic programmers We'll tell you all about that next month*



```
[illegible]
20 DIM [illegible]
30 [illegible]
NEXT I REM [illegible]
[illegible] page 6
40 DATA 104,104 1[illegible] 204,104,1[illegible]
4,133,206,104 33 105,162,16,[illegible]
[illegible]
[illegible] DATA 165 203,15[illegible] 3,165,204,157 [illegible]
[illegible]5,205,157 [illegible]165,206,157 3[illegible]
[illegible] 86,228,96 [illegible]7,58,155
[illegible] REM L[illegible] the [illegible] code temporar[illegible]
[illegible] reserved buffer space
[illegible] THEN 1[illegible]
[illegible] GOTO 90
[illegible] REM Now read the data from the [illegible] Autoboot cassette
[illegible]
```



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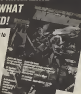

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PLEASE SEND ME YOUR LATEST PRICE LIST
NAME ....
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....
I OWN XL XE 520 520STM 1040

```
130 X=USR(1536,BER PEEK(BER+1)*128)
140 END
150 DATA 0,6,0[illegible],169,60,141,2,211
,24,96,169,191,1[illegible]31 2,169,0
160 DATA 141,237 2 [illegible],104,162,13,101,1
28,157,127,0,202 16 248,165,240,141,15
5,8
170 DATA 50,233,100,141,157,0,165,142,
141,156,0,233,7,141,158,0,10,141,201,7
180 DATA 173,157,0,240,0,16,3,238,101,
7,238,101,7,169,100,141,153,0,169,7
190 DATA 141,154,0,32,93,7,32,127,7,32
,169,7,90,162,16,169,3,141,82,3
200 DATA 169,0,141,90 3,169,128,141,91
,3,169,124,141,84,3,169,7,141,85,3
210 DATA 32,86,228,96,47,50,155,162,16
 169,11,141,82,3,173,153,0,141,84,3
220 DATA 173,154 0,141,85,3,173,155,0,
56,237,153,0,141,88,3,173,156,0,23
230 DATA 154,0,141,89,3,32,86,228 96 1
62,16,169,12,141,82,3,32,86,228,96
240 DATA 0,0,100,7,26,0,169,6,141 197,
2,169,60,141,2,211,162,0,189,26
250 DATA 3,201,69,240,5,232,232,232 20
8,244,232,142,160,0,189,26,3,133 203,2
32
260 DATA 189,26,3,133,204,160,15,177,2
03,153,161,0,136,16,248,169,110,141,16
5,0
270 DATA 169,0,141,166,0,174,160,0,169
,161,157,26,3,232,169,0,157,26,3,169
280 DATA 39,133,205,169,0,133,206,169,
12,141,159,0,169,0,141,151,0,141,152,0
290 DATA 24,96,173,165,0,141,231,2,173
,166,0,141,232,2,96,80,61,65,83,82
300 DATA 60,50,48,57,57,61,155,184,162
,13,165,177,0,149,128,202,16,248,169,9
1
310 DATA 133,2,169,0,133,3,169,102,153
,205,169,0,133,204,169,9,141,159,0,141
320 DATA 152,0,169,0,141,151,0,165,128
,141,231,2,165,129,141,232,2,96,71,82
330 DATA 46,48,50,82,65,78,155,172,15
,0,204,159,0,240,0,177,205,230,151,0
340 DATA [illegible]60,2,96,173,152,0,240,16,3 2
,160,0,165,205 153 26,3,200,165,204,15
3
350 DATA 26,3,169,155,160,1,96,-1
```

Get it right!

LINE	CHSUM	LINE	CHSUM	LINE	CHSUM
	6087	10	19310	20	21121
30	8348	40	12019	50	10982
60	4362	70	10250	80	2898
90	4317	100	5005	110	21671
120	3015	130	5740	140	836
150	9849	160	11380	170	10948
180	10706	190	10015	200	10403
210	10720	220	10479	230	10463
240	9090	250	11255	260	11395
270	10765	280	11006	290	10482
300	13164	310	10913	320	10797
330	10749	340	11059	350	4656

Program II

```
10 ;PROGRAM 2  A SIMPLE [illegible] AUTOBOOT FILE
20 COLOR4 = $02C8
30 COUNT  = $C0
30 DAUX1  = $030A
40 DAUX2    $030B
50 DBUFHI = $0305
60 DBUFLO   $0304
70 DCOMND = $0302
80 DSKINV = $E453
90 DUNIT  = $0301
0100 EOL =  $9B
0110 MEMLO  $02E7
0120 START  $0700
0130 ;
0140 ;Start by putting the new SAVE
      routine out of the way on page
      6  This section
0150 ;is needed only if you want to
      make the autoboot file using
      Assembler
0160 ;Call by  $600  The BASIC version
      (Program 3) contains a different
      SAVER routine
0170 ;
0180    *=  $0600
0190 ;
0200 SAVER
0210      LDA HEADER+1 Set up the resident
0220      STA COUNT    handler (not CIO)
0230      LDA #1       to save a block of
0240      STA DUNIT    code directly to
0250      LDA #W       disk sector 1
0260      STA DCOMND
0270      LDA #START&255
0280      STA DBUFLO
0290      LDA #START/256
0300      STA DBUFHI
0310      LDA #1
0320      STA DAUX1
0330      LDA #0
0340      STA DAUX2
0350
0360 WRITE1
0370      JSR DSKINV  Save to disk all
                      the
0380      BMI BERR    code from START
                      to FINISH
0390      LDA DBUFLO
0400      CLC
0410      ADC #128    (Sector size)
0420      STA DBUFLO
0430      LDA DBUFHI
0440      ADC #0
0450      STA DBUFHI
0460      INC DAUX1
0470      BNE NEXT1
0480      INC DAUX2
0490 ;
0500 NEXT1
0510      DEC COUNT
0520      BNE WRITE1
0530
0540 BERR
0550      BRK
0560
0570 ;The code to be made into a
      autoboot disk file starts here
      Note that
0580 ;the load address may be within
      the area normally reserved
      for DOS,
0590 ;since DOS cannot be used in
      conjunction with disk autoboot
      files
0600
0610      *=  START
0620 ;
0630 HEADER
0640      .BYTE 0      Not used
0650      .BYTE FINISH-START+127/128
                       Number of records
0660      .WORD START  Load address
0670      .WORD INIT   Initialisation
                       address
0680 ;
0690 COLDST
0700      CLC
0710      RTS
0720 ;
0730 INIT
0740      LDA #148        Set border colour
0750      STA COLOR4
0760      LDA #FINISH&255 Set MEMLO to
                          protect
0770      STA MEMLO       the autoboot
                          file from
0780      LDA #FINISH/256 destruction
                          by Basic
0790      STA MEMLO+1
0800      RTS
0810 ;
0820 FINISH = *
```

Program III

```
5 REM PROGRAM 3 - BASIC VERSION OF PRO
GRAM 2
10 REM Makes an autoboot disk file fro
m the data starting at line 140
20 FOR X=0 TO 83 READ D POKE 1536+X,D
NEXT X REM put SAVER routine to page
6
30 DATA 104,104,133,204,104 133 203 10
4,133,206,104,133,205,165,205,141,84,4
,169,1
40 DATA 141,1,3,169,87,141,2 3,165,203
,141,4,3,165,204,141,5,3,169 1
50 DATA 141,10,3,169,0,141,11,3 32,83
228,48,30,173,4,3,24,105,128,141
60 DATA 4,3,173,5,3,105,0,141,5,3 238,
10,3,208,3,238,11,3,206,86
70 DATA 6,208,221,96,0
80 BER (PEEK(106)-24)*256 REM Reserve
6K at the top of RAM, for a buffer are
a
90 COUNT 0 RESTORE 140
100 READ D IF D= 1 THEN 120
110 POKE BER+COUNT,D COUNT=COUNT+1 GOT
O 100 REM Copy the file into BFR
120 SIZE=INT((COUNT+127)/128) REM numb
er of sectors to save
130 X=USR(1536,BER,SIZE) REM copy the
data from BFR into an autoboot disk fi
le
140 DATA 0,1,0,7,0,7,24,96,169,148,141
,200,2,169,24,141,231,2,169,7
150 DATA 141,232,2,96, 1
```

Get it right!

LINE	CHSUM	LINE	CHSUM	LINE	CHSUM
5	8197	10	17050	20	16335
30	11972	40	9847	50	10858
60	9202	70	3211	80	17256
90	4066	100	4317	110	14237
120	15298	130	16955	140	9616
150	3224				

DATA sets for your own programs

Part 2 of STEPHEN WILLIAMSON'S series on creating your own custom-built character set

PART two of the Advanced Character Editor (ACE) provides a set of subroutines to be added to the main program which appeared last month Please note that part two will not work on its own

When typing in Program I make sure to use the line numbers exactly as printed and include all the REM lines

Before merging and running the combined program it is a good idea to list part two to tape using the LIST 'C command or to disc with LIST 'D ACE2

With part two loaded into memory enter part one from last month s *Atari User* by using the command ENTER C or for disc users ENTER D ACE1 You will then have merged parts one and two which can then be saved to tape using LIST C again or LIST D ACE1AND2 The third and final section of ACE will be published next month

Part two adds the extra commands COLOUR DATA LOAD and SAVE

COLOUR – C

Addresses 708 to 712 are the colour registers that affect the text graphic modes

The joystick allows you to alter the current colour Left and right change the shade while Up increases the brightness and Down decreases it

To change colour registers press the fire button The colour registers act differently in Graphics 0 compared with Graphics 1 and 2 as shown in Figure I below

The menu display shows the value of the colour chosen To recreate this colour in your own programs POKE the appropriate colour register with the value for example **POKE 708,8** will make the uppercase and number characters in Graphics 1 or 2 come out grey To exit from Colour press the Esc key

DATA – D

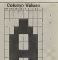
The eight numbers displayed when you enter the Data option are the bit mapped numbers used to define the current character shape in memory

A character consists of 64 pixels plotted within an 8 x 8 grid For each row a single number can be used to represent the pattern of pixels To do this a pixel plotted within the row is given a value that depends on which column it is in A pixel in the first column is given a value of 128, the second column 64 the third 32 and so on

	Register	Basic Equivalent
GRAPHICS 0		
Character Brightness	709	SETCOLOR 1
Background	710	SETCOLOR 2
Border	712	SETCOLOR 4
GRAPHICS 1 AND 2		
Uppercase and numbers	708	SETCOLOR 0
Lowercase characters	709	SETCOLOR 1
Inverse uppercase	710	SETCOLOR 2
Inverse lowercase	711	SETCOLOR 3
Background and Border	712	SETCOLOR 4

Figure I

The values of all the pixels in the row are added up to give a single number from 0 (no pixels on a row) to 255 (8 pixels in a row) This can be seen from Table II which depicts how the letter A is bit mapped



SAVE – S

A SAVE menu appears on the right hand side of the main display After an option has been chosen the device to which the data is saved must be specified All disc filenames must be a maximum of eight letters long with no extenders The character option will add the extender CHR to the saved file and the Screen option will add SCR No extender is added for the Basic Subroutine Cassette users must press Record and Play then press Return when prompted

BASIC SUBROUTINE – B

This option will save to tape disc or list to printer the subroutines (up to a maximum of six) that were written during the DATA section of ACE An example of the sort of file that is created is given as Program IV

CHARACTER – C

This saves the whole redefined character set to cassette or disc

SCREEN – S

The Screen option saves PAD screens The PAD option is included in ACE part three which will appear in next month s *Atari User* Until part three is merged with parts one and two then this option is unavailable

LOAD – L

Previously saved ACE character sets and PAD screen data can be loaded

CHARACTER – C

This loads a character set Any set loaded will overwrite the current character set display Disc users must specify the file name (without extender) and cassette users must after inserting the appropriate character set tape press Play when prompted

SCREEN – S

This option loads PAD screens and will be discussed next month when the PAD and animation modules are added to ACE

USING ACE CHARACTERS IN YOUR OWN PROGRAMS

The Basic subroutine that ACE saves is in listed form on lines 30000 to 30500 – so for obvious reasons you should avoid using these program lines yourself

ACE saves the subroutines as a listed file With your own program in ram add the subroutines to the end of your program with the ENTER C command for cassette users or ENTER D FILENAME from disc

Access the routine by using GOSUB 30000 In most cases this is best at the beginning of the program during initialisation routines

The ACE Character Set Routine program listing is an example routine written by ACE which redefines six characters The program stores the new character set at the top of ram To do this RAMTOP – the pointer to the top of the Basic free memory – is lowered RAMTOP can be found by examining the value held at address 106 (normally 160 on 800 XLs and XEs) This is value is expressed as pages of 256 bytes This means that RAMTOP is normally address 40960 (160 multiplied by 256)

Line 30030 of the subroutine lowers RAMTOP by five pages and then calculates CHBASE (the address for the character set data is to be loaded into) This is set to page 156 (address 39936) – see lines 30030 and 30040

The GRAPHICS 0 command in line 30050 reallocates the screen memory area to avoid conflict with the character data If you wish to use the routine in Graphics 1 or 2 then line 30050 must be changed To calculate the starting address of the new screen area use the formula

SCREENT=PEEK(88)+PEEK(89)*256

A short machine code routine copies the standard character set from rom to ram and then the redefined character set is loaded into the appropriate area of the character data

Address 756 points the operating system to the start of the character set data Normally a value of 224 is held here to indicate the standard rom character set at address 57344 (224 times 256)

If you want to change the address of the character set CHBASE should be set to a four page boundary below RAMTOP that is RAMTOP 4 RAMTOP 8 RAMTOP 12 and so on

To place the character data 12 pages below RAMTOP and leave the screen data area at its normal place in memory (at the top of ram) change line 30020 to read

30020 M=PEEK(106)-12

and delete line 30030 The character set will then be loaded at page 148 (address 37888) and finish at address 38911 – a full character set takes up 1k of memory

Don t forget to POKE the value 148 into address 756 to turn on the redefined character set

Each time you use a GRAPHICS command in a program the value in location 756 will be reset and you will have to POKE it back in again This also applies to pressing System Reset

ACE CHARACTER SET LOADER

The ACE Character Set Loader – Program II – is a subroutine for use with your own programs If you are using cassette then you should delete line 20010 and remove the REM command on line 20000

The filename for the character set as listed is D SET1 CHR Line 20010 may be altered should you want to load an ACE character set with a different filename All ACE file names are saved using the extender CHR

The subroutine can be listed to tape using LIST C or LIST D FILENAME and later merged with your own program using the ENTER command

This routine sets CHBASE to address 37888 (page 148 – or 12 pages below RAMTOP) To assign another area simply change the MEM address in line 20020 to another four page boundary below RAMTOP For example to make CHBASE page 144 (address 36864) change line 20020 to

MEM=PEEK(106)-18
CHBASE=MEM*256

To access the routine in your own program use the command GOSUB 20000

Cassette users will find it convenient to record the character data immediately following the main program When the character set loader is run make sure that the Play button is pressed and hit Return after the beep

ACE MACHINE CODE LOADER

The ACE Machine Code Character loader – Program III – is an assembly language routine for loading ACE character sets from machine code The listed source code can be typed in with the Atari Assembler Editor Cartridge MAC 65 or any other similar assembler program

To load a file other than D SET 1 CHR then line 420 must be changed but make sure to keep the CHR extender

To change the character set data area alter the CHBASE label

The listing is for Disc users only but can be adapted to cassette (see Andre Willey s articles on accessing CIO from Machine Code – *Atari User* from January 1987)

Program I: ACE Editor – Part two

```
[illegible] THEN GOSUB 1030 GOSUB [illegible]
[illegible]
2200 IF [illegible] THEN GOSUB 1030 GOSUB 25
[illegible]
2210 IF PE[illegible] THEN GOSUB 1030 GOSUB 40
[illegible]
[illegible] THEN GOSUB 1030 GOSUB 46
[illegible]
[illegible]
[illegible]
[illegible]
[illegible] DATA
[illegible]
[illegible] PEEK(DAT), [illegible],PEE
K(DAT[illegible]
[illegible] PEEK(DAT+3) [illegible]
EEK(DAT[illegible]
[illegible] PEEK(DAT[illegible]
EEK(DAT[illegible]
[illegible]
[illegible]
[illegible] GET [illegible]
[illegible]
[illegible] THEN GOSUB 1070 GOSUB
370 RETURN
[illegible]
[illegible] REM [illegible] ROUTINE
[illegible] IF [illegible] THEN GOSUB 2[illegible]
ION 2[illegible] CHR$ [illegible] MEMORY FULL [illegible]
[illegible] RETURN
2390 ? CHR$ [illegible] POSITION 0,2
2400 CHDAT=CHBASE [illegible]
2410 ? [illegible]
0
2420 ? [illegible] POKE CHBASE+[illegible]
[illegible] NEXT I [illegible] LN=LN+10
2430 ? LN [illegible] DATA [illegible],
2440 FOR I=0 TO 6
2450 ? ,PEEK(CHDAT+I) , [illegible] NEXT
2460 ? PEEK(CHDAT+7)
2470 LN=LN+10
2480 [illegible] GOTO2500
2490 POSITION 0,0 POKE [illegible] 13 END
2500 POKE 842,12
2510 OPEN [illegible] 4,0,K
2520 ? CHR$(125) POKE SA+[illegible]30[illegible] GOSUB
3120 GOSUB 1630 GOSUB 1720
2530 RETURN
2540 REM ERASE RIGHT HAND
2550 FOR I=4 TO 18
2560 POSITION 26,I ? SP$, POSITION 37,
I
2570 NEXT I
2580 RETURN
2590 REM COLOUR
2600 GOSUB 2960
2610 POSITION 2,1 ? COLOUR
2620 POKE 764,255 KEY=255
2630 REG 708
2640 IF REG=708 THEN PO=1567
2650 IF REG=709 THEN PO=1572
2660 IF REG=710 THEN PO=1577
2670 IF REG=711 THEN PO=1582
```

```
2680 IF REG=712 THEN PO=1587
2690 C=INT(PEEK(PO)/16)
2700 BR=PEEK(PO)-(C*16)
2710 POSITION 28,7:? "REG      ",CHR$(3
0),CHR$(30),CHR$(30),REG
2720 POSITION 28,8:? "NO      ",CHR$(30)
,CHR$(30),CHR$(30);PEEK(PO)
2730 IF STICK(0)<>15 THEN FOR B=1 TO 5
NEXT B
2740 IF STICK(0)=11 THEN C=C-1:IF C=-1
 THEN C=0
2750 IF STICK(0)=7 THEN C=C+1:IF C=16
THEN C=15
2760 IF STICK(0)=14 THEN BR=BR+2:IF BR
>14 THEN BR=14
2770 IF STICK(0)=13 THEN BR=BR-2:IF BR
<0 THEN BR=0
2780 POKE PO,BR+C*16
2790 IF STRIG(0)=0 THEN REG=REG+1:GOSU
B 1030:IF REG=713 THEN REG=708
2800 IF STICK(0)=15 AND PEEK(764)=255
AND STRIG(0)=0 THEN 2710
2810 IF PEEK(764)=255 THEN 2680
2820 IF PEEK(764)=28 THEN GOSUB 1030:G
OSUB 2550:POKE 764,255:RETURN
2830 ? CHR$(255):POKE 764,255
2840 GOTO 2690
2850 REM RESTORE
2860 ATBASE=57344
2870 GOSUB 2940
2880 POSITION 2,9:? "RESTORE
2890 FOR I=0 TO 7
2900 POKE CHBASE+(CH*8)+I,PEEK(ATBASE+
(CH*8)+I)
2910 NEXT I
2920 GOSUB 1820
2930 GOSUB 1180
2940 GOSUB 2960
2950 RETURN
4060 REM SAVE
4070 GOSUB 2960:POSITION 2,10:? "SAVE
4080 POSITION 27,8:? "CHARACTER
4090 POSITION 27,7:? "BASIC SUB  POKE
764,255
4100 POSITION 27,9:? "SCREENS
4110 GET #1,KEY
4120 IF KEY=27 THEN GOSUB 1030:RETURN
4130 IF KEY<>67 AND KEY<>66 AND KEY<>8
3 THEN ? CHR$(253):GOTO 4110
4140 IF KEY=67 THEN GOSUB 1030:GOSUB 5
040:GOSUB 4200:RETURN
4150 IF KEY=66 THEN GOSUB 1030:GOSUB 5
040:GOSUB 4270:RETURN
4160 IF KEY=83 THEN GOSUB 1030:GOSUB 4
350:RETURN
4170 REM
4180 RETURN
4190 IF KEY<>58 AND KEY<>10 THEN 4540
4200 REM SAVE CHARACTER SET
4210 CLOSE #1:N=LEN(FILES):FILES(N+1,N
+4)=".CHR"
4220 IF KEY=68 THEN OPEN #1,8,0,FILES
4230 IF KEY=67 THEN OPEN #1,8,0,"C:"
4240 START=CHBASE:FINISH=CHBASE+1023:G
OSUB 4460
4250 POKE 209,1:FILES=""
4260 CLOSE #1:OPEN #1,4,0,"K:":RETURN
4270 REM SAVE BASIC SUBROUTINE
4280 N=LEN(FILES):FILES(N+1,N+1)=".SUB
4300 IF KEY=68 THEN LIST FILES,30000,3
0500
4310 IF KEY=67 THEN LIST "C:",30000,30
500:SOUND 0,0,0,0
4320 IF KEY=32 THEN LIST "P:",30000,30
500
4330 POKE 209,1:FILES=""
4340 GOSUB 2550:RETURN
4350 REM SAVE SCREEN DATA
4360 GOSUB 5040:N=LEN(FILES):FILES(N+1
,N+4)=".SCR"
4370 GOSUB 2550:POSITION 27,9:? "NO  T
O SAVE
4380 GET #1,K
4390 IF K=27 THEN GOSUB 1030:RETURN
4400 IF K<49 OR K>57 THEN ? CHR$(254):
GOTO 4380
4410 GOSUB 1030:N=K-48
4420 IF N=27 THEN GOSUB 1030:RETURN
4430 IF N<48 AND N>57 THEN ? CHR$(254):
 GOTO 4380
4440 START=SM(1):FINISH=SM(N)+519
4450 GOSUB 4460:GOSUB 2550:POKE 209,1:
FILES="":RETURN
4460 REM MEMORY SAVE
4470 CLOSE #1
4480 IF KEY=67 THEN OPEN #1,8,0,"C:"
4490 IF KEY=68 THEN OPEN #1,8,0,FILES
4500 POKE START-6,N:POKE START-5,PEEK(
1587)
4510 POKE START-4,PEEK(1572):POKE STAR
T-3,PEEK(1577)
4520 POKE START-2,PEEK(1582):POKE STAR
T-1,PEEK(1587)
4530 START=START-6
4540 HISTART=INT(START/256):LOSTART=ST
ART-HISTART*256
4550 LENGTH=FINISH-START:HILENGTH=INT(
LENGTH/256)
4560 LOLENGTH=LENGTH-HILENGTH*256
4570 POKE 849,1:POKE 850,11
4580 POKE 852,LOSTART:POKE 853,HISTART
4590 POKE 856,LOLENGTH:POKE 857,HILENG
TH
4600 POKE 858,8:IF KEY=67 THEN POKE 85
9,128:POKE 62,128
4610 A=USR(ADR(INS))
4620 CLOSE #1:OPEN #1,4,0,"K:":POKE 20
9,1
4630 SOUND 0,0,0,0:RETURN
4640 REM LOAD
4650 TRAP 5000:GOSUB 2960
4660 POSITION 2,6:? "LOAD":P=0
4670 GOSUB 2550:POSITION 27,8:? "CHARA
CTER
4680 POSITION 27,9:? "SCREEN
4690 GET #1,KEY:POKE 209,1
4700 IF KEY=27 THEN GOSUB 1030:RETURN
4710 IF KEY<>67 AND KEY<>83 THEN ? CHR
$(253):GOTO 4690
4720 GOSUB 1030
4730 IF KEY=67 THEN GOSUB 4850
4740 IF KEY=10 THEN GOSUB 4885
4750 IF KEY=83 THEN GOSUB 4770
4760 POKE 209,1:SOUND 0,0,0,0:RETURN
4770 REM LOAD SCREEN DATA
4780 GOSUB 5040:N=LEN(FILES):FILES(N+1
,N+4)=".SCR"
4790 CLOSE #1:IF KEY=68 THEN OPEN #1,4
,0,FILES
4800 IF KEY=67 THEN OPEN #1,4,0,"C:":P
OKE 859,128:POKE 62,128
4810 MEM=SM(1)-6:GOSUB 4880
4820 POKE 1567,PEEK(MEM+1):POKE 1572,P
EEK(MEM+2):POKE 1577,PEEK(MEM+3):POKE
1582,PEEK(MEM+4)
4850 POKE 1587,PEEK(MEM+5):RETURN
4860 REM LOAD CHARACTER DATA
```

Get it right!

LINE	CHSUM	LINE	CHSUM	LINE	CHSUM	LINE	CHSUM	LINE	CHSUM	LINE	CHSUM	LINE	CHSUM
270	8463	2250	944	2500	8445	2240	511	4280	871	4290	8146	4330	6818
970	1844	2235	2844	2510	5254	2270	3273	4310	8938	4320	6446	4340	8252
1850	1959	2250	5491	2530	8852	2280	7971	4350	1811	4530	3951	4350	5748
2100	18682	2290	18815	2540	3252	2290	1835	4370	7916	4360	3286	4370	5748
2310	2521	2320	10815	2550	1878	2300	2871	4380	7231	4410	3286	4420	4428
2320	10062	2330	17396	2560	2628	2310	5426	4410	3236	4420	3236	4440	5564
2370	4516	2340	15659	2570	1565	2320	2371	4440	8421	4460	1559	4460	8828
2400	3588	2350	10230	2580	6468	2330	1959	4450	5936	4470	5752	4470	8828
2460	2454	2410	1558	2590	7645	2360	7977	4500	8311	4510	2837	4480	5975
2470	2676	2420	3276	2600	1346	2370	2888	4510	7844	4520	1876	4490	5979
2490	5678	2430	10755	2640	7767	2380	1517	4530	5736	4610	1272	4540	3923
2500	2279	2450	7636	2650	4326	2390	3443	4620	1372	4670	4320	4560	7931
2560	6486	2460	5599	2660	7277	2400	10445	4670	8467	4710	9141	4630	7831
2670	4325	2470	9822	2670	7577	2410	6445	4720	5895	4740	5987	4650	8252
2710	8350	2480	7536	2690	8589	2420	7645	4730	7737	4750	5974	4660	3848
2760	7536	2490	7977	2700	9822	2430	3165	4750	3977	4760	7277	4690	2948
2780	4857	2510	4209	2710	9836	2440	1997	4800	1357	4780	5917	4700	5974
2790	11082	2520	4209	2720	4208	2450	1990	4820	4322	4830	2896	4710	5974
2820	11678	2530	4290	2730	2596	2460	1658	5010	6318	5010	1893	4720	3862
2830	2291	2540	1957	2740	8050	2470	8418	5030	5336	5030	5770	4740	5642
2840	7996	2550	7265	2750	2598	2480	1959	5050	5336	5050	10893	5060	10670
2850	1929	2560	1875	2760	7465	2490	1610	5090	1365	5110	5554	5140	4388
2860	1543	2570	1757	2770	1957	2500	1955	5100	1945	5130	5554	5160	9436
2870	7766	2580	9657	2780	7766	2510	1817	5130	1365	5150	11064	5170	7591
4100	5671	2590	1416	2790	8460	2520	10453	5140	1948	5160	3309	5180	7247
4110	8423	4170	871	4100	1638	4240	12234	5150	1948	5190	17016	5200	4752
4250	3771	4200	5941	4270	5228	4290	5228	5210	1498				

```
4050 GOSUB 5040 Q=LEN(FILE$) FILE$(Q+1
,Q+4)=".CHR" CLOSE #1
4060 IF KEY=83 THEN OPEN #1,4,0,FILE$
4070 IF KEY=67 THEN OPEN #1,4,0,"C:" P
OKE 559,128 POKE 82,128
4080 REM CHBASE
4090 REM TO LOAD
4900 HIBYTE=INT(MEM/256)
4910 LOBYTE=MEM-HIBYTE*256
4920 POKE 850,7 POKE 852,LOBYTE
4930 POKE 853,HIBYTE
4940 POKE 856,255 POKE 857,255
4950 POKE 858,4
4960 A=USR(ADR(IN$))
4970 CLOSE #1 OPEN #1,4,0,"K:"
4980 GOSUB 1030 GOSUB 1720 FILE$=""
4990 GOSUB 2550 RETURN
5000 REM FILE NOT FOUND ERROR
5010 GOSUB 2540 POSITION 27,7 ? CHR$(2
53),"ERROR NO. ";PEEK(195) IF PEEK(195)
=138 THEN POSITION 27,8 ? "NO DEVICE"
5020 IF PEEK(195)=170 THEN POSITION 27
,8 ? CHR$(253) "FILE NOT" POSITION 27,
9 ? "FOUND" [illegible]
5030 FOR DEL=1 TO 100 NEXT DEL CLOSE #
1 OPEN #1,4,0,"K:" RETURN
5040 REM GET DEVICE
5050 GOSUB 2550 POKE 764,255
5060 POSITION 27,7 ? "DISK OR"
5070 POSITION 27,8 ? "CASSETTE"
5080 IF KEY=80 THEN POSITION 27,9 ? "P
RINTER"
5090 KEY=255
5100 GET #1,KEY
5110 IF KEY=27 THEN GOSUB 1030 POP RE
TURN
5120 IF KEY=80 AND P=1 THEN GOSUB 1030
 RETURN
5130 IF KEY<>67 AND KEY<>68 AND KEY<>8
0 THEN ? CHR$(253) GOTO 5090
5140 IF KEY=68 THEN GOSUB 5160
5150 RETURN
5160 REM DISK FILE NAME
5170 GOSUB 2540 POSITION 27,7 ? "FILE
NAME"
5180 POSITION 26,10 INPUT NAME$
5190 IF LEN(NAME$)=0 THEN POSITION 26,
8 ? [illegible] NAME$ POSITION 2
6,10 ? [illegible] GOTO 5180
5200 GOSUB 1050 FILE$(LEN(FILE$)+1)=NA
ME$
5210 RETURN
```

Program II: ACE Character Set Loader

```
[illegible]
19999 REM [illegible]
20000 [illegible]
MSC [illegible]
20005 REM [illegible]
POKE [illegible]
[illegible] REM [illegible]
20010 OPEN [illegible] REM [illegible]
CASSETTE [illegible] LINE 20010
20020 REM PEEK 106 [illegible] CHBASE MEM [illegible]
20030 HIBYTE [illegible] CHBASE [illegible]
20040 LOBYTE [illegible]
20050 POKE 852 [illegible] LOBYTE
20060 POKE [illegible] HIBYTE
20070 POKE [illegible] 255
20080 POKE 858 [illegible]
20090 A=USR(ADR [illegible]
20100 CLOSE
[illegible]
[illegible]
```

Get it right!

LINE	CHSUM	LINE	CHSUM	LINE	CHSUM
[illegible]	[illegible]	19999	[illegible]	20000	[illegible]
20005	[illegible]	20010	12176	20020	[illegible]
20030	4334	20040	5086	20050	5014
20060	3082	20070	4417	20080	[illegible]
20090	2949	20100	7559	20110	[illegible]
20120	[illegible]	20130	[illegible]		

Program III: ACE Machine Code Character Loader

```
[illegible] LOADER
[illegible]
[illegible]
40 COMMAND=$342
50 BUFFER=$344
60 BUFLEN=$348
70 AUX1=$34A
80 AUX2=$34B
90 CHBASE=[illegible]
0100 CIO=$E456
0110  PLA
0120  LDX #$10
0130  LDA #12 CLOSE [illegible]
0140  STA COMMAND,X
0150  JSR CIO
0160  LDX #$10
0170  LDA #3 OPEN DEVICE [illegible]
0180  STA COMMAND,X
0190  LDA #4 SET AUX [illegible]
0200  STA AUX1,X
0210  LDA #0 SET ZERO [illegible]
0220  STA AUX2,X
0230  LDA #NAME&255 ADDRESS OF
FILENAME IN BUFFER
0240  STA BUFFER,X
0250  LDA [illegible]
0260  STA BUFFER+1,X
0270  [illegible]
[illegible]
0280  LDX #$10
0290  LDA #CHBASE&255 LOW BYTE OF
FILENAME ADDRESS
0300  STA BUFFER,X
0310  LDA #CHBASE/256 HIGH BYTE OF
FILENAME ADDRESS
0320  STA BUFFER+1,X
0330  LDA #255 SET MAXIMUM RECORD LENGTH
0340  STA BUFLEN,X
0350  STA BUFLEN+1,X
0360  LDA #7 SET COMMAND TO GET [illegible]
[illegible]
0370  STA COMMAND,X
0380  JSR CIO
0390  LDA #CHBASE/256 HIGH BYTE OF
CHBASE
0400  STA 756 STORE HIGH BYTE IN CHBAS
E SWITCH ON ALT CHARACTER SET
0410  RTS
0420 NAME .BYTE "D:SET1.CHR" FILENAME OF
CHARACTER SET CHANGE TO LOAD
DIFFERENT FILENAME
0430  .END
```

ACE Character Set Routine

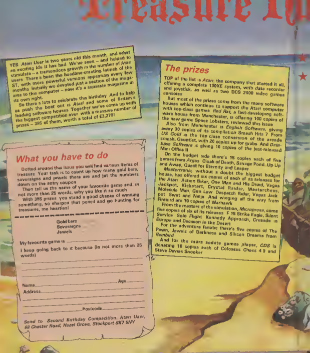
```
[illegible] REM [illegible]
30000 REM [illegible]
30010 DIM ML$(40)
30020 M=PEEK(106)-4
30030 POKE 106,M-1
30040 CHBASE=256*(M
30050 GRAPHICS 0 SETCOLOR [illegible]
30060 RESTORE 30090 FOR L=1 [illegible]
A
30070 ML$(L,L)=CHR$
30000 REM ACE CHARACTER [illegible]
30005 REM by Stephen W[illegible]
30010 DIM ML$(40)
30020 M=PEEK(106)-4
30030 POKE 106,M-1
30040 CHBASE=256*(M)
30050 GRAPHICS 0 SETCOLOR [illegible] 0
30060 RESTORE 30090 FOR [illegible] READ
A
30070 ML$(L,L)=CHR$(A) NEXT L
30080 A=USR(ADR(ML$),M) POKE [illegible]
30090 DATA 104,104,104,[illegible]
,135,206,162,0,160,0 [illegible]
[illegible]
30100 [illegible]
,200 [illegible]
30110 [illegible]
30120 POKE [illegible]
30130 [illegible]
30140 [illegible]
30150 POKE [illegible]
30160 DATA [illegible]
30170 FOR [illegible]
30180 POKE [illegible]
30190 DATA [illegible]
,0
30200 FOR [illegible]
30210 POKE [illegible]
30220 DATA [illegible]
,0
30230 FOR [illegible]
30240 POKE [illegible]
30250 DATA 0,0 [illegible]
30260 FOR [illegible]
30270 POKE [illegible] NEXT [illegible]
30280 DATA 25 [illegible]
[illegible]
30500 RETURN
```

Get it right!

LINE	CHSUM	LINE	CHSUM	LINE	CHSUM
30000	14059	30005	[illegible]	30010	[illegible]
30020	2268	30030	2098	30040	2631
30050	5007	30060	8547	30070	4056
30080	5503	30090	12057	30100	9095
30110	3605	30120	5449	30130	4179
30140	3605	30150	5473	30160	4098
30170	3605	30180	5474	30190	5418
30200	3605	30210	5474	30220	5418
30230	3605	30240	5477	30250	4258
30260	3605	30270	5402	30280	5547
30500	3492				

It's our biggest competition ever

Treasure Hu



YES *Atari User* is two years old this month and what an exciting life it has had We've seen – and helped to stimulate – a tremendous growth in the number of Atari users There's been the headline-creating launch of the ST, with more powerful versions appearing every few months Initially we devoted just a section of the magazine to this computer – now it's a separate magazine in its own right.

So there's lots to celebrate this birthday And to help us push the boat out is *Atari* and some of Britain's leading software houses Together we've come up with the biggest competition ever with a massive number of prizes – 385 of them, worth a total of £3,278!

What you have to do

Dotted around this issue you will find various items of treasure Your task is to count up how many gold bars, sovereigns and jewels there are and jot the numbers down on the entry coupon

Then tell us the name of your favourite game and in not more than 25 words, why you like it so much

With 385 prizes you stand a good chance of winning something, so sharpen that pencil and go hunting for treasures, me hearties!

Gold bars
Sovereigns
Jewels

My favourite game is ________________

I keep going back to it because (in not more than 25 words)

____

____

____

Name ____________ Age ______

Address ________________

____

____________ Postcode ______

Send to Second Birthday Competition Atari User,
68 Chester Road, Hazel Grove, Stockport SK7 5NY

The prizes

TOP of the list is *Atari* the company that started it all, offering a complete 130XE system, with data recorder and joystick, as well as two DCS 2600 video games consoles

But most of the prizes come from the many software houses which continue to support the Atari computer with top-class games *Red Rat*, a fast-developing software house from Manchester, is offering 100 copies of the new game Space Lobsters, reviewed this issue

Also from Manchester is *English Software*, giving away 30 copies of its compilation Smash Hits 7 From *US Gold* is the top class conversion of the arcade smash, Gauntlet, with 20 copies up for grabs And *Database Software* is giving 10 copies of the just-released Mini Office II

On the budget side there's 15 copies each of five games from *Argus* Cloak of Death, Savage Pond Up Up and Away, Quest for Eternity and Leaper

Mastertronic, without a doubt the biggest budget house, has offered six copies of each of its releases for the Atari Action Biker, One Man and His Droid, Vegas Jackpot, Kickstart, Crystal Raider, Masterchess, Molecule Man, Gun Law Despatch Rider, Vegas Jackpot Swat and Ninja And winging all the way from Firebird are 10 copies of Warhawk

From the masters of the simulation, *Microprose*, come five copies of six of its releases F 15 Strike Eagle, Silent Service Solo Flight Kennedy Approach, Crusade in Europe and Decision in the Desert

For the adventure fanatic there's five copies of The Pawn, Jewels of Darkness and Silicon Dreams from *Rainbird*

And for the more sedate games player, *CDS* is donating 10 copies each of Colossus Chess 4 0 and Steve Davies Snooker ver

unt!

- ★ 385 prizes
- ★ And they're worth £3,278

Decision in the Desert

Analogue avenue to producing freehand drawings

Part II of LEN GOLDING's series on using your Atari to control devices

THIS month's simple gadget makes it easy to produce freehand drawings on screen. Children will have hours of fun with it and it has been known to occupy adults for the odd evening or two.

It's very easy to build and program needs no knowledge of electronics and can be built in a few hours by any DIY enthusiast. In fact it's an ideal first project for youngsters who are starting to study the ins and outs of computers at secondary school.

It looks rather like an upside down joystick but it works by generating analogue rather than digital signals.

Why is that an advantage? Well a standard digital joystick can produce only nine separate codes which your software has to interpret as directional commands – up down and so on.

Because movement is limited to only eight directions it's very difficult to draw diagonal lines except at 45 degrees and almost impossible to produce curves.

Also factors like speed and distance have to be programmed separately – speed by using some kind of timing loop and distance by moving one step at a time for as long as the stick is held in one position.

Analogue joysticks work on an entirely different principle. They generate numbers which correspond to the current vertical and horizontal position of the stick itself.

In the Atari's case these numbers can vary from 1 to 228 so it's possible to convert them into actual screen coordinates for any mode up to Graphics 7. This means that you can plot a coloured pixel at any position you choose and it gives you fingertip control over speed distance and direction.

The mechanics are quite complex – two potentiometers mounted at right angles on a double axis – but fortunately they can be bought ready made. The type we've chosen is the kind often used for radio control and it's surprisingly inexpensive.

The resistance of each pot changes as you move the stick around and the Atari's internal analogue to digital converter turns the two outputs into numbers which reflect the stick's vertical and horizontal position.

As the resistance increases so the numbers generated by the joystick also increase starting at 1 – for resistances less than about 1000 ohms (1K) – and rising to 228 when the resistance is around 500K.

Now the joystick we've chosen can vary from a few hundred ohms to

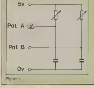


Figure I

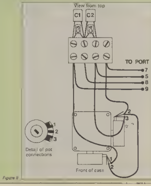
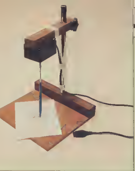


Figure II



The graphics stylus

about 200K, and left to its own devices it will generate numbers from 1 to about 84, which means that you could map the results straight on to a Graphics 5 screen (80 x 40 pixels).

However, most of the time you will want better resolution than this. So how can we make the gadget return coordinates suitable for plotting directly to Graphics 7?

The answer is simple – just wire a capacitor between each pot output and the 0v line, as shown in Fig 1. Here's the theory. The analogue to digital converter works by measuring the time taken to charge an internal capacitor through the pot's resistance. If you increase the resistance, the capacitor will take longer to charge, so a higher number will be returned.

Similarly, if the capacitor is made larger, it will take longer to charge through any given resistance. The joystick assembly fixes the resistance range for us, so to generate a different set of numbers we must somehow alter the capacitance value.

You can't get at the Atari's internal capacitor to change it, but wiring an extra capacitance between each pot and the 0v line has the same effect. By choosing the value with care, it is possible to make our joystick generate numbers from 1 to anywhere between 80 and 228.

This range still isn't adequate for direct mapping to a Graphics 8 screen (320 pixels wide), so very high resolution graphics are out – you can't use it for engineering drawing, for example. However it will work very well with any of the colour modes, and we've tuned ours to Graphics 7.

The capacitance needed is around .07 microfarads, and you can't buy this exact value in the shops. You could try .068 mfd if you can find one with nice long leads, or a .047 mfd in parallel with a .022 mfd will give approximately the same result.

The gadget's output should now vary from 1 to about 190, and our software can easily trim this to suit a 160 x 80 or 160 x 96 screen.

Construction of the electronics is very straightforward. There's no printed circuit board, and everything is wired through a small terminal block as shown in Figure II.

Twist the leads of the capacitors together tightly before fitting them to the block, so there's no risk that they will separate during use. Leads to the pots must be soldered, and it's best to use stranded wire rather than the solid-core type, even though this is a little trickier to handle.

Although you could mount the joystick in a simple hand held box, the "overhead arm" system is much easier to control. Figures IIIa and IIIb show how to make it, using odds and ends you may be able to find around the house.

The dimensions are not critical, and may be varied to suit your materials. The pillar can be a short piece of wardrobe rail, an offcut of 15mm or 22mm copper plumbing pipe, or even a section of wooden broom handle or 3/4in dowel.

The handwheel bolt isn't strictly

All dimensions are in millimetres

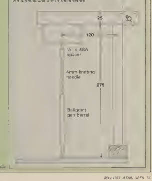


Figure IIIb

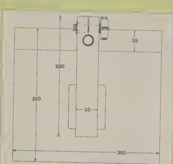


Figure IIIb

necessary – an ordinary nut and bolt or even a wood screw will do – but it lets you adjust the overhead arm more easily

The dimensions shown will give you a drawing surface about 170mm by 110mm, but moving the arm up or down will obviously expand or contract this area The larger it is the better the resolution but the stylus tends to wobble if it extends beyond about 250mm which eliminates any advantage

The stylus is in two parts Start by attaching a 160mm length of 4mm knitting needle to the joystick spindle using a plain ⅛in x 4BA spacer as a coupler Araldite or some other adhesive which can fill small gaps is best for this job

The barrel of a cheap ballpoint pen then slides on to the needle making a stylus which will telescope along its length so that it can remain in contact with the baseboard at all times while the joystick arm swings around A Papermate 2000 Stick will fit very snugly, but most pen barrels should work

Mount the joystick assembly in a small box with a cutout for the spindle (Figure IV) It s difficult to mark dimensions on the plastic box itself so make a full size paper template and glue it to the box surface with Copydex

Drill the four 3mm holes and use a fretsaw to cut out the square aperture then the paper can be peeled off without leaving a trace The joystick body is attached with four number 4 self tapping screws through the 3mm holes

Strap the joystick cable to the arm and pillar with large cable ties or plastic insulating tape leaving a small loop to allow for vertical adjustment

Now it s time to think about software and Program I is the place to start The stick s horizontal and vertical positions are returned at address 624 and 625 respectively

Use Program I to check that the numbers vary from 1 to at least 180 If not it may be necessary to change C3 and/or C4 Even capacitors with nominally the same value can vary by up to 10 per cent in their actual value but even so the vast majority should give acceptable results

Program II is a simple Basic routine which lets you draw on screen Line 10 selects the mode and colour and lines 20 to 30 calculate the coordinates to be plotted

The raw numbers returned by the joystick are adjusted to suit the screen dimensions 0 to 179 horizontally 0 to 79 vertically – and ensure that the boundaries cannot be exceeded Then it s simply a matter of plotting a pixel of your chosen colour at these coordinates

Actually it s not quite that easy because the analogue joystick works so fast that it will beat the computer s operating system and you ll get a series of dots rather than a continuous line if you move the stylus at any reasonable speed

The easy way round this is to use the DRAWTO command (line 70) to fill in the gaps This tends to flatten out curves if they are drawn at high speed but is perfectly adequate for a simple sketch pad

Program III adds a touch of elegance by using a vertical blank routine to do the job of checking and converting the stick s outputs It returns the horizontal position at

Program I

```
5 REM PROGRAM 1 TE[illegible]
10 GRAPHICS [illegible]
20 POSITION [illegible] PEEK [illegible] PE
EK(625)[illegible]
30 GOT[illegible]
```

LINE	CHSUM	LINE	CHSUM	LINE	CHSUM
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Program II

```
1 REM PROGRAM [illegible] ANALOGUE JOYS
T[illegible]K ROUTINE
10 GRAPHICS [illegible]
20 [illegible] PEEK 624 [illegible]
30 [illegible]
40 IF [illegible] 159 THEN [illegible]
50 [illegible] THEN [illegible]
60 POKE [illegible] REM [illegible]
[illegible]
80 DRAWTO [illegible]
```

LINE	CHSUM	LINE	CHSUM	LINE	CHSUM
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

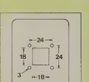


Figure IV

address 1790 and the vertical position at 1791 so all Basic has to do is PLOT or DRAWTO these coordinates

Address 1789 contains the bottom margin value and defaults to 79 which is the top of the text window If you would prefer a full-screen display select Graphics 23 at line 10 and insert this extra line

75 POKE 1789 95

Remember that as with all machine code programs you must get the data statements absolutely correct and be sure to save a copy before you try running it

Program IV is a completely self contained sketchpad routine with extra controls It works rather like Program III but uses a PM graphics cross as a cursor This can sweep over your picture without affecting it in any way or can be made to leave a trace in one of three colours If you've ever used a mouse you will find the action familiar

At the start of the program the cursor leaves no trace but can be positioned exactly where you want to start drawing This is the pen lifted mode From then on the different functions are selected by pressing keyboard keys

A	–	Blue trace
B	–	Orange trace
C	–	Green/yellow trace
O	–	Erase (plot background colour)
Space	–	Lift pen

This assumes that you are happy with the Atari's default colours but you can easily change them using the SETCOLOR command say between lines 130 and 140 The cursor colour (white) is held in address 704 – change it if you want to

As with Program III the bottom margin value is 79 and is held at address 1789 For a full screen display you should POKE it with 95 after executing the USR command

Although this is a delightful little toy to play with it naturally cannot compare with expensive digitisers or high quality graph pads

Limitations arising from the pots' internal construction and the steering geometry mean that it cannot be used as a precision instrument You can't, for example trace maps accurately onto the screen – though it makes a fair show of copying large line drawings or children's templates

But as a freehand drawing aid it will give many hours of enjoyment, especially to young children and could be a useful introduction to learning keyboard skills

Anyone care to write a really good PAINT type program for it?

MAIN PARTS REQUIRED FOR SKETCHPAD

		Maplin Code
1	2 axis joystick	HQ50E
2	047 mfd capacitors	WW20W
2	022 mfd capacitors	WW19V
1	4 way screw terminal block	FE78K
1	Plastic box	LH20W
1	< 4BA plain spacer	FW32K
1	Handwheel bolt and T nut	YL23A
4	½ No 4 self tapping screws	BF66W
1	Joystick extension lead	

Program III

```
5 REM PROGRAM 3   VB ROUTINE CONVERTS
STICK OUTPUT INTO GR 7 PLOTTING CO-ORD
INATES
10 GRAPHICS 7 COLOR 1
20 FOR X=0 TO 60 READ D POKE 1536+X,D
NEXT X REM Insert VB routine
30 DATA 104,169,79,141,253,6,162,6,160
,16,169,7,32,92,228,96,173,112,2,56
40 DATA 233,20,176,7,169,0,141,254,6,2
40,5,201,100,144,2,169,159,141,254,6
50 DATA 173,113,2,56,233,40,176,7,169,
0,141,255,6,240,11,205,253,6,144,3
60 DATA 173,253,6,141,255,6,76 98,228
70 X=USR(1536) REM X and Y co-ordinate
s are now returned at 1790 and 1791 re
spectively
80 COLOR 1 PLOT PEEK(1790),PEEK(1791)
90 DRAWTO PEEK(1790),PEEK(1791) POKE 7
7,0 GOTO 90
```

Get it right!

LINE	CHSUM	LINE	CHSUM	LINE	CHSUM
5	16140	10	3594	20	13066
30	10759	40	10881	50	10603
60	5524	70	20712	80	6231
90	9169				

Program IV

```
5 REM PROGRAM 4   SKETCH PROGRAM WITH
PM CURSOR AND EXTRA CONTROLS
10 FOR X=0 TO 1 4 READ D POKE 1536+X,D
 NEXT X REM Insert machine code routin
e
20 DATA 104,104,104,141,7,212,24,105,2
,133,204,133,206,169,0,133,203,133,205
,168
30 DATA 162,2,145,203,136,208,251,230,
204,202,208,248,169,79,141,253,6,169,1
4,141
40 DATA 192,2,169,3,141,29,208,169,46,
141,47,2,162,6,160,82,169,7,32,92
50 DATA 228,96,173,112,2,56,233,20,176
,7,169,0,141,254,6,240,9,201,160,144
60 DATA 2,169,159,141,254,6,173,113,2,
56,233,40,176,7,169,0,141,255,6,240
70 DATA 11,205,253,6,144,3,173,253,6,1
41,255,6,173,120,2,24,105,5,168,162
80 DATA 5,169,0,145,205,136,202,16,250
,173,254,6,24,105,48,141,175,6,141,0
90 DATA 208,173,255,6,24,105,14,141,17
6,6,169,162,4,169,170,6,145,205,200,20
2
100 DATA 16,247,169,0,141,252,6,76,98,
228,32,32,248,32,32
110 PMBASE=PEEK(106)-16 REM find a saf
e place for the PM data table
120 POKE 106,PMBASE GRAPHIC 7
130 X=USR(1536,PMBASE) REM Set new VB
routine running
140 POKE 764,33 REM Select pen up mo
e
150 IF PEEK(764)=33 THEN 150
160 COLOR PEEK(764) PLOT PEEK(1790),PE
EK(1791) GOTO 160
170 IF PEEK(764)=33 THEN 150
180 COLOR PEEK(764) DRAWTO PEEK(1790),
PEEK(1791) POKE 77,0 GOTO 170
```

Get it right!

LINE	CHSUM	LINE	CHSUM	LINE	CHSUM
5	15561	10	10835	20	15[illegible]
30	11076	40	10412	50	10110
60	10761	70	10547	80	10736
90	11213	100	8171	110	14121
120	5210	130	11792	140	8011
150	4306	160	9428	170	4306
180	11607				

Gear up your Basic for faster graphics

A machine code routine
by PARESH SOLANKI

MANY people have described the Atari's graphics as one of its best features. I won't argue, but how many of you have backed away because they looked too difficult to handle from Basic, or you simply weren't satisfied with the execution speeds you could achieve?

Well, no more excuses! Here is a machine language subroutine which you can use from Basic to achieve fast and exciting graphics without a lot of mess and fuss.

As a matter of fact, you make only one setup call to the subroutine and then forget it. Couldn't be simpler, could it? And you need to know nothing about machine language, either – just a couple of POKEs and you'll have your players dancing around the television screen.

One feature of the Atari with which you may not be familiar is its interrupt mechanism, and it is this which can be used to move your players about at machine language speed – all without the overhead of calling it each time from your Basic program.

In fact this interrupt mechanism can be made to do anything – change colour registers, update sound values and much more. But before we explore this useful feature, lets take a quick refresher course on interrupts.

As you know, the Atari keeps itself pretty busy doing its housekeeping chores even while it is running your Basic program. Among other things it must maintain the steady delivery of information to your television screen, allowing it constantly to update the display.

Multiple, concurrent activities are performed by allowing one particular activity to periodically interrupt another.

The traditional analogy is that of a busy business executive who, while engaged in a meeting with an associate, is interrupted by a telephone call.

The ringing phone signals the interrupt and the executive pauses his meeting and answers the phone. After disposing of the call, the executive then resumes his meeting at the point he left off – hopefully.

A similar, but more controlled sequence of operations occurs each time a complete picture is shown by your television set. The TV's electron beam paints the picture by sweeping in horizontal rows across the picture tube beginning in the upper left hand corner and ending in the lower right.

The beam is turned off when it reaches the lower right corner and is returned to its upper left starting position. This return trip is essentially a vertical positioning movement, so this period when the beam is turned off is known as the the vertical blank period.

The onset of the vertical blank cycle serves as an opportunity for the Atari's ANTIC chip to signal an interrupt – the vertical blank, or VBLANK, interrupt. The operating system uses this occasion to perform some of its internal housekeeping duties such as updating the colour registers, checking the keyboard and operating the real-time clock and timers.

Fortunately, the operating system design team allowed us to include our own machine language subroutine for execution as one of these tasks.

The machine language vertical blank interrupt player movement subroutine described here is called VBLANK/PM and it allows you to POKE the next X and Y coordinates at which your player is to be displayed.

There is no need to repeatedly call the subroutine from Basic via the USR function. The subroutine will be executed automatically during the next vertical blank period.

It is theoretically possible to move the players every time a new screen is painted on the television – and that's 50 times every second.

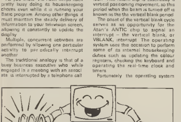
You may recall that an appropriate POKE to locations 53248 to 53251 permits you to position the four players anywhere along the X axis. It hasn't been quite so easy to position the players vertically along the Y axis – until now.

The VBLANK/PM subroutine moves players in both directions. Movements along the vertical axis involve erasing the data and then replotting the player in the new position. VBLANK/PM does this for you automatically. However, there are a few things that you must do first.

First you must get the VBLANK/PM machine language into memory and notify the operating system that it is to be included as one of the housekeeping tasks to be performed as a part of the vertical blank interrupt.

Next it's up to you to draw your players and tell VBLANK/PM how tall they are. After initialisation, VBLANK/PM continuously looks after the positioning of your players until you press the System Reset key.

Program I is an example of the initialisation and use of the VBLANK/PM subroutine. This program causes VBLANK/PM to be loaded and initialised and players zero and one to



Housekeeping keeps your Atari busy

be drawn and then moved about on the screen

Lines 100 through 200 are the demonstration program I'll save the explanation of these lines until after you've gained some insight into the initialisation subprogram contained in lines 1000 to 1110 The VBLANK/PM machine language subroutine is expressed in the DATA statements on lines 2000 to 2100

Finally lines 3000 to 3020 supply a description of the two players used in this example

The first task is to load VBLANK/PM into page six of memory Page six locations 1536 to 1791 ($600 to $6FF) has been left available by Atari's software designers for applications such as this These 256 bytes of memory are not disturbed by Basic and the operating system and are thus free for any use you want to put them to

Line 1010 causes the VBLANK/PM to be read and POKEd into memory Line 1020 clears a few locations used by the subroutine – this statement can be omitted if you are sure that page six has not been altered since you switched on the computer

We're going to employ the Atari's ANTIC chip direct memory access (DMA) facility to transfer graphics information to the TV screen using single line resolution This means that we must allocate 2k (2048 bytes) of memory for the storage of the player data

In line 1030 we find the current top of available memory by reading RAMTOP This value is measured in 256 bytes pages so we must subtract eight pages (or 2048 bytes) to leave space for our player/missile map

The GRAPHICS 0 is there to give the operating system a chance to take note of our revision to RAMTOP It will place the new graphics screen below this location and thus leave everything above RAMTOP undisturbed for our player data

The lower 1024 bytes of this area are unused for player data in this mode so player zero occupies PMBASE+1024 to PMBASE+1279 player one is located at PMBASE+1280 to PMBASE+1535 and so on Figure I shows you how this looks in memory

Line 1040 clears any residual data from the whole player area but in most cases all except player three will be clear anyway so if you're in a hurry you can often omit this line

Lines 1050 and 1060 are used to draw players zero and one VBLANK/PM expects the players to be drawn such that their top line is initially placed at the beginning of the individual player's storage area The player can be as tall as you like up to 255 lines – of course you will never see all of a player which is that tall on the screen at once

PMBASE	Unused in this mode
PMBASE + 768	All Missiles (0 3
PMBASE + 1024	Player Zero
PMBASE + 1280	Player One
PMBASE + 1536	Player Two
PMBASE + 1792	Player Three
PMBASE + 2048	End of PMG reserved area

Figure I Player/Missile memory map

Line 1070 is used to set the player colour registers at 704 to 707 and assumes that you've already set variables PCOL0 – PCOL3 to contain the values you want

Line 1080 establishes the addresses which you will be using later to signal player movements PLX and PLY are the locations POKEd to establish the next X and Y position of player zero

→

```
10 REM ********************
20 REM * V B L A N K / P M *
30 REM * By Paresh Solanki *
40 REM *                  *
50 REM *ATARI USER MAGAZINE*
60 REM *     May, 1987     *
70 REM ********************
80 REM
100 PRINT CHR$(125) PRINT   Please w
ait  initializing   ,
110 PCOL0=73 PCOL1 255 REM Colour of p
layers
120 GOSUB 1000 REM Initialize vertical
 blank routine
130 POKE PLL,8 POKE PLL+1,8 REM Player
s height
140 POKE PLX,100 POKE PLY,102 REM Play
er zero s initial position
150 POKE PLX+1,100 POKE PLY+1,72 REM I
nto player one
155 SETCOLOR 2,0,0 POKE 752,1 PRINT CH
R$(125) POSITION 11,11 PRINT V B L A
N K  P M
160 REM Move players
170 POKE PLX,RND(0)*159+48 POKE PLY,RN
D(0)*191+32
180 POKE PLX+1,RND(0)*159+48 POKE PLY+
1,RND(0)*191+32
190 FOR I=1 TO 50 NEXT I GOTO 170
200 END
1000 REM Initialize VBLANK PM subrouti
ne
1010 FOR I=1536 TO 1786 READ A POKE I,
A NEXT I
1020 FOR I=1774 TO 1787 POKE I,0 NEXT
I
1030 PM=PEEK(106) 8 PMBASE PM*256 POKE
 106,PM GRAPHICS 0
1040 FOR I PMBASE+1023 TO PMBASE+2047
POKE I,0 NEXT I
1050 FOR I=PMBASE+1025 TO PMBASE+1032
READ A POKE I,A NEXT I
1060 FOR I=PMBASE+1281 TO PMBASE+1288
READ A POKE I,A NEXT I
1070 POKE 704,PCOL0 POKE 705,PCOL1 POK
E 706,PCOL2 POKE 707,PCOL3
1080 PLX 53248 PLY=1780 PLL=1784
1090 POKE 559,62 POKE 623,1 POKE 1788
PM+4 POKE 53277,3 POKE 54279,PM
1100 X=USR(1696)
1110 RETURN
2000 REM Vertical blank interrupt rout
ine machine code
2010 DATA 162,3,189,244,6,240,89,56,22
1,240,6,240,83,141,254,6,106,141
2020 DATA 255,6,142,253,6,24,169,0,109
,253,6,24,109,252,6,133,204,133
2030 DATA 206,189,240,6,133,203,173,25
4,6,133,205,189,248,6,170,232,46,255
2040 DATA 6,144,16,168,177,203,145,205
,169,0,145,203,136,202,208,244,76,87
2050 DATA 6,160,0,177,203,145,205,169,
0,145,203,200,202,208,244,174,253,6
2060 DATA 173,254,6,157,240,6,189,236,
6,240,48,133,203,24,138,141,253,6
2070 DATA 109,235,6,133,204,24,173,253
,6,109,252,6,133,206,189,240,6,133
2080 DATA 205,189,248,6,170,160,0,177,
203,145,205,200,202,208,248,174,253,6
2090 DATA 169,0,157,236,6,202,48,3,76,
2,6,76,98,228,0,0,104,169
2100 DATA 7,162,6,160,0,32,92,228,96
3000 REM Players zero and one
3100 DATA 24,126,90,219,255,255,255,1
0
3110 DATA 48,168,216,254,238,254,238,1
08
```

Get it right!

LINE	CHSUM	LINE	CHSUM	LINE	CHSUM
10	5473	20	3551	30	4093
40	2843	50	5109	60	3844
70	3433	80	871	100	12821
110	9354	120	13245	130	9662
140	14889	150	10972	155	14703
160	4840	170	8345	180	9080
190	5435	200	836	1000	9480
1010	7544	1020	6231	1030	9592
1040	9048	1050	10585	1060	10395
1070	11264	1080	5050	1090	11465
1100	2092	1110	1498	2000	13940
2010	9949	2020	9841	2030	10507
2040	10844	2050	10326	2060	10077
2070	10170	2080	10402	2090	8909
2100	4843	3000	6692	3100	5475
3110	5520				

A POKE into locations PLX+1 and PLY+1 accomplishes the same thing for player one and so forth for players two and three. PLL and the following three locations are POKEd to inform VBLANK/PM of the height of each player.

Line 1090 initialises the remaining player/missile parameters. A 62 is POKEd into location 559 to set the single line player/missile resolution graphics, and a 1 placed into location 623 establishes the player/playfield priorities – in this case giving all the players priority over the playfield.

Location 1788 inside VBLANK/PM is POKEd with the page number of PMBASE, the first page containing player/missile data. Locations 53277 and 54279 are used to switch on the DMA graphics data transfer facility and to tell the ANTIC chip where in memory to find the player graphics data.

Now you're almost ready to go. A subroutine call on line 1100 allows VBLANK/PM to notify the operating system of both its presence and its desire to be invoked automatically as part of the vertical blank interrupt process.

This is the only time in which your Basic program must explicitly call VBLANK/PM.

Finally, let's take a quick look at the controlling demonstration program – lines 100 through 200.

Line 110 sets the players' colours before the VBLANK/PM initialisation subprogram is executed. Simply multiply the colour number by 16 and add the desired intensity – the colour and intensity numbers are the same as those used in the SETCOLOR command. Line 120 sets the routine running.

Line 130 illustrates the manner in which you pass instructions to VBLANK/PM. Here we are telling it that both players are eight lines tall, though you can change this parameter at any time.

Lines 140 and 150 establish the initial television screen positions of players zero and one respectively.

Don't forget that the extremes in both directions are not actually visible on the screen. For a player to be seen it must have an X value of between 48 and 208 and a Y value of between 32 and 228. These numbers may vary slightly depending on the adjustment of your screen. VBLANK/PM positions the top left hand corner of the graphic shape at the coordinates you supply.

Line 155 sets up a white on black display for the background, and lines 170 and 180 contain the routines to move the players about on the screen.

Line 190 provides a small delay between player movements. Delete the FOR and NEXT statements if you want to see how fast – and easy – it is to move players.

Well, who said player/missile graphics had to be anything but fun? Give VBLANK/PM a try in one of your current programs to add a little zip. Or just try it out in your next game or graphics project. Happy player movements!

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Driving slow – American style

I WOULD be obliged if you could explain to me an abnormality I have found while using my 130XE

I have two computers – an 800XL and a 130XE The XL and my 1050 drive are American NTSC models which I use on a special TV via a drop down transformer without any problems When I run my RPM test (American version) I get the figure 288 – the correct speed

I purchased the 130XE two months ago and when I run the same test I get a figure of 348 returned – but all my programs seem to run with no problems (except for a minor colour change) as all my programs and games were purchased in the States

What I would like to know is should I alter my drive speed to obtain 288 or just continue using it at 348 RPM? – **A D Hart, Hawick, Scotland**

● There is no fault with any of your equipment you ll be glad to know The answer to your speed problems lies not with the drive but with the two computers

Most disc drive timing programs work by counting the number of revolutions of the disc in a given period The vertical blank period happens at set regular intervals so this is often used to keep track of time

On a UK machine the [illegible] tical blank [illegible] 50 times a second [illegible] American NTSC [illegible] occurs 60 [illegible] This means the [illegible] ten on [illegible] machine [illegible] British one

The speed [illegible] 5/6 the [illegible] must be [illegible] 0.83333 [illegible] reading [illegible] 290 which is [illegible] enough [illegible]

Pascal compiler

I HAVE owned an Atari 8-bit computer for five years and I have recently purchased an Atari 130XE

For four years I have been doing a BSc [illegible] Studies at the Polytechnic of Wales During this time my primary working language has been Pascal and consequently I have done very little Basic programming In fact I mainly use my Atari for word processing my assessment for college

I was [illegible] and pleasure when [illegible] a [illegible] the Atari [illegible] 1987) [illegible] favourable review of a [illegible] Pascal compiler for the Atari 8 bit micros The [illegible] is made by [illegible] about Kyan [illegible]

However the details [illegible] very sketchy [illegible] Kyan Pascal and would appreciate any further details – **A C Daye, Whitchurch, Cardiff**

● As far as we know there are no UK dealers planning to import the product which means that you will have to order direct to America You should order from Kyan Software 1850 Union Street 183 San Francisco CA 94123 USA

Choosing the right Dos

I HAVE not had my Atari 800XL for long and have just started buying Atari User

In the April issue you [illegible] the Fruits game and [illegible] I would be grateful if you could tell me if it is alright to format my disc with Dos 3.0 and then type in the program and save it to this format – **Elizabeth Hearty, Whitburn, Bathgate**

● You can save the program to a disc formatted with Dos 3.0 but you are advised to use another type of Dos such as Dos 2.5 The only reason for not using Dos 3 is that it is not especially efficient or easy to use You will find that Dos 2.5 is a more friendly system

Comms problems

CAN you please give me some help concerning communications software?

I use a 130 XE and a WS2000 modem with the Datatari interface The software is the Multiviewterm package When I logon to Prestel I find plenty of interesting information but the buffer only allows me a very short [illegible] before I have to break and print what I have got

I also can t find any software available for Atari 8 bit machines to download When I logon to Telecom Gold I find plenty of public domain programs but I cannot find any way to download them

Can you tell me of any program that will allow me to use the full capacity of the 130XE I have one from the American [illegible] that allows me to open up the 130XE [illegible] greater extent than the [illegible] Do you know of any program that does [illegible] be [illegible] loaded [illegible] I can use

→

Machine code drawing

I RECENTLY bought Mapping the Atari [illegible] book [illegible] as [illegible] out Instead [illegible] examples of [illegible] [illegible] example [illegible] I have [illegible] for [illegible] very unhelpful

For example [illegible] the book [illegible] how to DRAW a line in machine code using a routine in ROM But when I looked it up all it gave was [illegible] address to the DRAW routines giving no explanation on how to use them – **Matthew Sreeves, Alcester, Warwickshire**

● Mapping the Atari is not a tutorial book but a memory map – as the cover indicates It has to cover every single location within the machine and to help you out gives references to more comprehensive reference works on that particular subject

The machine code drawing techniques that will allow you to plot and draw are explained in greater detail within the Operating System [illegible] but Mapping the Atari does cover them with its CIO description

You could also look at our CIO tutorial series the Compunet program with it before I go on line.

I also have a comms program from Arolasoft called HomePak. The trouble is that it gives "modem error" as soon as I try to load it. Clearly there is nothing wrong with the modem so what am I doing wrong please.

Also what am I doing wrong with the Telecom Gold system that stops me from downloading? The information comes up on my screen but I cannot get anything on to disc.

I rang Atari Helpline in London only to be told that there was nothing else available that uses the Datatari set up. If there is no other program on the market, could you advise me of someone I can contact who can put me on to something larger that better suits my needs? I find it hard to believe that the only program available for Atari 8 bit users is so limited.

Good luck to Atari ST User. Now we 8 bit users can enjoy a full magazine of our own. That brings me to another small query. What is Page 6?

I know it is a magazine, and I know that it is a Prestel page, but I think from my reading of the April issue of your mag that it is also something inside my computer. If this question sounds silly please forgive a learner.

As a grandfather, I'm rather old to be learning anything so perhaps this is something the youngsters learn in their first lessons but I seem to have missed its significance somewhere along the way. – **Peter AJ O'Grady, Luton, Bedfordshire.**

● Communications always seem to provide many problems for users, experienced or not. However you do seem to have had more than your fair share of them.

All of your problems stem from the fact that the MultiViewterm software doesn't work very well, but no other software will recognise Miracle Technology's Datatari interface. Thus HomePak can't access the modem because it can't find the correct interface (the Atari 850).

However, at last help is at hand in the form of Mini Office II. This package contains six modules, one of which is a comms package which will support the Datatari cable.

When using Mini Office II with MicroLink/Telecom Gold you will be able to spool your downloaded programs straight on to disc or use a 10k internal buffer if you prefer. It also supports the 130XE ramdisc so you can store up to 64k of text into the ramdisc before needing to save it back on to floppy.

While this software doesn't support Prestel, you will find it very much more powerful for general comms use than MultiViewterm.

As to your final query, page 6 is an area of memory inside the Atari. One page of memory is 256 bytes, and so the sixth page of memory starts at address $0600 Hex (1536 Decimal). This area is special because no part of the Operating System, Basic or Dos uses it for storage.

This means that it is left free for the programmer to use, and it is often used as a safe area for machine code programs or player missile graphics data.

ATARI USER Mailbag

WE welcome letters from readers – about your experiences using the Atari micros, about tips you would like to pass on to other users, and about what you would like to see in future issues.

The address to write to is:

Mailbag Editor
Atari User
Europa House
68 Chester Road
Hazel Grove
Stockport SK7 5NY

Proofreading problems

I OWN an Atari 800XL and I frequently use AtariWriter. When I discovered that Proofreader (a spelling corrector) existed I bought a copy from Silica Shop.

According to the package I had all the requirements. But it is only when you read the instructions (sealed inside) that it becomes clear that the Atariwriter cartridge is also necessary – thus unless you are prepared to spend £30 to downgrade from the disc version your money is wasted.

I wrote to Silica Shop but never received a reply. Can you offer any advice as I'm sure I'm not the only person caught in this trap? – **Steven Clarkson, Leamington Spa, Warwickshire.**

● We contacted Atari and mentioned this problem. The reason Atari Proofreader does not work on disc is because the Proofreader itself requires to be online in drive 1. This conflicts with AtariWriter, which should also be booted from drive 1, so there is no way to run both modules.

I suggest that you try and get a refund or trade in from Silica Shop.

Monthly discs

I READ with interest two letters in your April issue which referred to Atari User monthly tapes and discs. As I have recently acquired a disc drive I would be very interested in obtaining your monthly disc if this facility were reintroduced.

In fact I would also like all of the earlier copies, a couple at a time until I catch up. If not I would indeed like to see compilation tapes/discs. Perhaps these could be split into two types – Games and Utilities. I sincerely hope that enough readers respond to make this worthwhile. – **D McMenemy, Loaudy, N.Ireland.**

Vital statistics

I OWN an Atari 800XL and being a student studying for a psychology degree, I would like to know if there are any programs available dealing with statistics, preferably on disc as I have a 1050 disc drive. – **Robert Kelvason, Southampton, Hants.**

● Synapse Software has released a product called Syn Trend which may be of some use to you. It is more applicable to business trend analysis but you will almost certainly be able to adapt it.

Printing graphics

Could you you tell me how to make graphics work on the 1029 printer? I typed both listings from your September 1985 issue and it only printed to screen, not to the printer. I fiddled around with it and it still *would not work* – **Michael Simons, Crowborough, East Sussex.**

● The programs we printed worked fine to the best of our knowledge so perhaps you are not using them correctly Program 1 was the subroutine for the actual screen dump The second program was simply a program that set up the screen with something to be printed out Linking the two should produce the required output

If this still does not help you make sure that the programs are typed in correctly

The bit image graphics on your 1029 are described in detail within the 1029 manual but to help you out here is a brief outline When the 1029 is in bit image mode (graphics) any bytes sent are not converted to an Ascii character but are printed as a 7 bit vertical bar

Each bit can be 0 (no dot) or 1 (dot) By sending combinations of bytes you can make up a matrix of dots Printing more lines extends this matrix down the page thereby building up a large picture

The problem is in working out the correct bytes to send to the printer This is what the screen dump in the magazine has to do

Computing by post

I WAS interested to read in the March edition of Atari User about Roy Goring and the computer correspondence course he is offering However you forgot to publish any details of how to contact Mr Goring so could you please tell me his address? – **D. Stokes, Coventry.**

● Roy Goring can be contacted by writing to him at RJG Programming Brockhampton Road Havant PO9 1NT Tel 0705 451214

Games shortage

PLEASE could you tell me why many good games are not being brought out for the Atari? Games like PSI5 Trading Company Space Harrier, The Last Ninja, Hyper Sports and the long awaited Elite

Also, could you tell me why we faithful Atari users are getting brushed aside Atari keeps bringing out excellent games like Paperboy and so on – for machines such as the Spectrum Amstrad and Commodore Why do we lose out on all those Atari arcade games that every other home computer owner can play – except us Atari fans? – **Paul Swinburn, Sheffield**

● If you take a good look at the market there are lots of new companies releasing games for the Atari They obviously want to test the water first so when a company does make Atari software available write and say what a wise move it was That way it will be interested in producing more

As for the "Atari" arcade titles you mention these are actually developed and owned by Atari Coin Op not by Jack Tramiel's Atari Corp These are now two completely separate companies and Atari Coin Op will sell the rights to its games to whoever pays the most for them

It then becomes a decision for the software house that buys the rights as to which formats it wants to convert the game to

Thus as we said before the more you let them know that there is a demand for Atari products the more likely it is that such classics will soon become available

PEN PALS

Mr George Jackson 9
Horsley Road Barmston
Washington Tyne and
Wear NE38 8HQ

Ludovic Houchart Val De
L Olivet, Pont D Ucel
07200 Aubenas France

Cyril Moerkoert Schubeek 13 0223-DS Lelystad Holland

Tape mangler

WHEN I load games into my computer I get a strange noise – and it often chews up my tapes Can anyone tell me what is wrong with my 800XL? – **Dennis Sigsworth, Liss, Hants**

● It sounds as if your tape recorder's motor or tape guide and capstan are at fault – certainly chewing up tapes is not a feature that most recorders boast about I suggest that you return your recorder to your dealer for fixing

Cassette or disc?

I RECENTLY read your review of Action! and was wondering whether it is possible to use it with a cassette rather than a disc drive I was impressed by your review and I'm very interested in buying it If I

Disc formatting options

I RECENTLY purchased an Atari 800XL computer with 1050 disc drive as a pack from Currys This also contained some software which I was very pleased with

However after buying a pack of 10 double sided/double density discs from a mail order company advertising in your magazine I became rather worried as I could not format any of them

I first thought that the discs were at fault, and so sent them back to the company which had supplied them asking for an exchange The same discs were later returned with a letter assuring me that they were error free

They had been rechecked, and one had even been left formatted with Dos 2 When I tried to format the remaining discs with Dos 2 Dos 3 Home Filing Manager or AtariWriter error messages seemed to indicate that there was something wrong with the discs Could you please tell me if there is a fault in my drive or computer

I think your magazine is excellent It is my main source of information about the Atari range

I'm especially interested in the gadgets series by Len Golding and would like to know if he will be including an article on speech synthesis – **D Butterfield, Didcot, Oxon**

● It is possible that your disc drive is at fault The 1050 should be able to format any normal 5 25in disc you give it especially in single density mode

Try using the P option on Dos 2 5 to do a single density format If this still doesn't work take it back to your dealer for service

Thanks for your comments about the Gadgets series You may be interested to note that RH Design the company which handles the PCB manufacture for us has had such a good response that it is now able to supply the completed gadgets For a price list write to RH Design 137 Stonefall Avenue Harrogate North Yorkshire HG2 7NS *won't work, could you please tell me the name of another compiler and where I could get it from?* – **Matthew Croft, Derby.**

● You'll be glad to know that Action! can be used with a cassette recorder as it is cartridge based and all I/O operations may be transferred via tape rather than disc You will obviously find that loading and saving take a lot longer and making up a library of INCLUDE subroutines might be a little harder due to the nature of tape

The only major problem you will find is if you want to use the Run Time package or Programmers Aid Toolkit because they both come on disc and would need to be transferred before you can use them

Also if you want to make run time machine code files Action! isn't designed to generate cassette autoboot files You could convert the binary load format into an autoboot form or use a little Basic loader routine This only applies if you want to save a free standing machine code program, as Action! source code can be loaded from cassette compiled and then run with no problems

Manual labour

I HAVE recently bought an Atari 800XL plus 1050 disc drive and also a copy of your helpful magazine I am sure that I'm suffering like all new owners due to lack of information The manuals I received with my computer were not terribly good and don't explain the Basic commands or give any technical information whatsoever

I am therefore led to believe that there must be a much better text available and I hope you can give me its title Also are there any other versions of Dos and Basic available and which are the best?

I have so far bought only one copy of your mag but have already found it very helpful and have used some of the excellent five liners Keep up the good work – **C Skipsey, Birtley, Co. Durham**

● There are many books that uncover the hidden qualities of your Atari but they can be very technical and hard to understand at first – we normally recommend a combination of the best books available

Be patient when learning – it can be a long and confusing task With that in mind start off by getting a copy of the 130XE Handbook or Your Atari Computer (Revised Edition) from your dealer

When you want to dig a little deeper Mapping the Atari tells you what all the locations in memory do and is an indispensible reference guide De Re Atari is another great source of information on applying the power of the Atari to its fullest

These two books cover all the ground rules needed but they are heavy going You can also buy various other books which skip lightly over complex matters and these would be fine for a beginner

There are many alternatives to Atari's Dos and Basic including Dos 1 0 Dos 2 0 Dos 2 5 Dos 3 0 SpartaDos Dos XL My Dos K Dos Microsoft Basic Basic/XL Basic/XE and various compiled versions of Basic

Ask your dealer for his recommendations, but the combination of Basic/XE with either Dos XL or SpartaDos would be very powerful indeed

And keep looking at *Atari User* Helping users get the best out of their computer is what we're here for!

Spellbound help

I HAVE a few tips for Spellbound To get the lift working take the Midlinir from Elrand the Halfelven Summon Thor to the lift using the Elf horn

Give the Midlinir to him and then command him to help with the Wand of Command from the roof Thor will now hit the control box with the Midlinir enabling you to go to the basement

The Elf horn can be obtained from Samson The Strong on the 2nd level

To get past the gas room on the first floor collect the Red Herring from the 3rd floor and Power Pong Plant from the basement This will enable you to cast a Fumecus Protecticus spell

To get past the dark room on the 3rd floor you must collect the glowing bottle from the L shaped room on that floor

To get extra energy collect the Bottle of Liquid from the roof and give it to Florin then take it back again and you will now have full energy

To blow up the wall on the 4th floor collect the pocket laser from the ground floor Summon Lady Rosemar to the 4th floor and give her the laser

Now command her to help and she will blow up the wall using her quick blow fuse to fix the laser – **Neil Richardson, Camberley, Surrey**

User friendly

I WANT to tell fellow Atari users of the good friendly and fast service that Compumart UK has provided me

Four months ago I bought a 1050 disc drive with the free games, but on January 16 it would not boot properly so I rang them up and they gave me a freepost address to send the drive to

I sent it off and four days later I got the disc drive back Well done Compumart for the fast service

Dutch dilemma

I RECENTLY bought an Atari 130XE I live in Holland and I was therefore supplied with a manual in Dutch It is impossible to obtain a manual in English so until I do I can't use my computer fully

I would therefore be grateful if anyone can help me – **A. De Gorban, The Hague, The Netherlands**

● Why not write to Atari UK as we're sure that they'd be able to help you with an English version of the manual

Failing that try to get hold of a copy of a book called The Atari 130XE Handbook or another entitled Your Atari Computer Either will give you lots more information than the manual does

Computer support

Following advertisements in your magazine by Computer Support (UK) Ltd, on the 17/11/86 I asked them to supply a 64k upgrade for a

MicroLink

ALL program listings in *Atari User* are now available for free downloading on MicroLink, the UK's fastest growing electronic mail service. They join hundreds of programs already available on Britain's national on-line databases.

600XL, the cheque being cashed on 27/11/86

Several letters followed requesting the reason for delay in delivery without reply until recently my latest letter was returned by the Post Office indicating that this letter was not delivered and that they had gone away

In desperation I am writing to you in the hope that you know the whereabouts of this company so that I can try and reclaim my £29.95 It is disappointing that this firm has not answered my letters especially when another firm – Homeview – was still advertising in your magazine as a dealer for Computer Support as recently as February – **R Preddy, Haverfordwest, Dyfed**

● Computer Support has moved to a new address and should be able to sort out your problems at Computer Support 153 Parrock Street Gravesend Kent

Compatible modems

I am interested in knowing the difference between modems offered in the UK and modems offered in the United States Are they compatible? And if not could you provide some information on these differences It would be greatly appreciated – **William R. Thompson, Huntingdon, Cambridgeshire.**

● There are differences between the UK and American telephone systems so the tones which the modems use are not the same Unless you have a modem that can produce both tones they cannot communicate with each other The American system is called Bell and the UK standard is CCIT

Another point to remember is that American modems are not approved by BT and thus you are illegal to use them here

YOUR HINTS AND TIPS

PROLONG YOUR ACTIVE LIFE

Bruce Lee *On the eleventh screen you will see two orange masks Run into these and you will be awarded an extra life Go all the screen then go back and collect them again! You may do this several times but if you complete the game the masks will not be there on your second play*

On the last screen (the one with the chained warlock spitting at you) you must run straight across without stopping

Goonies *On the first screen go behind the water tank and jump at it It will fall opening a trap door*

Thrust *Here is a new screen skipping method Simply shoot the reactor until the countdown has begun then thrust upwards until you warp The mission will have failed but you skip on to the next screen without losing a life*

This will work for the first few screens but as the reactor gets deeper and deeper into the complex it will become harder to pull this stunt off – so just shoot the reactor and wait This time you will lose a life but will still skip on to the next screen

When you thrust upwards do not shoot as the shots will fly back into you Also when you first warp on to a screen it is possible to shoot before your ship actually appears – this may help if you warp in somewhere inside the complex

Montezuma's Revenge *The following set of operations will solve all levels except two U and D stand for Up and Down and L and R are Left and Right T and M refer to Top and Middle and K and T mean collect Key or Torch*

DM K RT / DM / K K UM / LT / LT / DM / RT DM K UM LT / K K LT DM LT RT RT / RT / K UM / LT LT DM LT / K DM / RT RT / RT / DM / LT / LT / LT / T DM RT / RT RT DM LT DM K LT / DM RT K RT DM / Diamond Mine – **Ben Halligan Penny Pot Lane Harrogate**

FINDING THE DRAGON IN ZAXXON

I'M writing in response to the recent plea for help in getting past the third level of Super Zaxxon

Having spent many hours myself trying to crack it just do the following Look at the height indicator on the left of your screen At the first wall it should read two and a half squares at the second three and a half at the third one and three quarters and at the fourth and final wall two and a half again

All of this work is worthwhile though – the dragon in the next stage has some excellent graphics – **Lee Hodgin, Chippenham Wilts**

MEDIATOR

IN reply to the letter from C P Slater who needed help with Mediator After collecting all six bones the horse appears from the soil You then have to guide the horse over the river by walking on the [illegible] far right hand side of the screen

The horse has to be [illegible] and you when walking over the tree That is how to complete this sheet but you've got a few more problems ahead of you! – **Robert Taylor Pinner, Middx**

BOUNTY BOB EXTRAS

Bounty Bob Strikes Back *Go to the menu screen and move the cursor to the Special Code register Set this to 61800 Now hold down the F key and press Option Then press Start*

You will now be able to use the following keys

F Bob can fly anywhere on the screen Press F again to stop
Q Go to next screen
A Go back a screen
B Bob goes back to his original position
Z Reset Screen

– **Michael James Clatworthy, Lichfield Staffs**

PASSWORDS, NETS AND DITTIES

Starquake *Passwords are Artic Traid Kernx Minim Crash Atari Penta Cosec Delta Salco Quark Argon and Zap*

Warhawk *On the higher levels a glowing net appears If you touch it you can fire twice as fast*

AtariArtist *On the main menu position the cursor over the centre line of the Atari logo Press fire and a little musical ditty is played* – **Nicholas Linehan Tideswell, Derbyshire**

So you want to write for . . .

ATARI USER

WANT to see your name into print? If you would like to write for us here are a few hints and tips which will give you a better chance of being accepted

- *Whatever you send us should be of general interest to other Atari users You may find a program to tell you when your rabbit needs feeding of use but it's doubtful that there will be a mass market for such a piece of software*
- *When submitting anything always send both your article and or program on tape or disc rather than just on paper If you have a printer a listed output would be preferable to a typed one We can't accept handwritten programs no matter how good they might be*
- *Don't forget that the same applies to articles Please send a copy of the text on tape or disc as we use a method of typesetting directly from Atari micros*
- *Avoid using non standard tape or disc formats such as Dos 3 Spartados or increased baud rate tapes If there is absolutely no way you can send a disc or tape of your text you should type it clearly double spaced on white paper If your work stands out as being good enough we could then get it transcribed on to computer*
- *While we can't guarantee the return of material sent in to us if you enclose a stamped self addressed envelope we will endeavour to see that your work is returned*
- *Make sure that your name and address and the title of the article or program is on everything you send, including the tape or disc and each sheet of text A phone number – preferably daytime as well as evening – would also be useful*
- *Please state clearly that the submission is your own work and that it is being offered for publication in Atari User and has not been previously submitted elsewhere*
- *We prefer articles to run to between two and four pages (at about 1 000 words a page less with diagrams and listings) or to be broken down into separate parts if they are much longer Rates are paid per final printed word not by how much material you actually send so make your article clear and concise*
- *If you are submitting a program you should explain fully how it works preferably with a rough line/variable breakdown Point out any problems which may occur during typing and how they can be overcome*
- *Aim to make your programs readable with plenty of REMs to indicate what is going on However never jump to a REM statement as many people like to leave them out when typing in a listing*
- *Try your program out on an unsuspecting friend This will often throw up a problem you hadn't even considered*
- *Try to avoid graphics and machine code placed in strings Unless there is no alternative put your machine code into data statements since Control key graphics are very hard to enter correctly*
- *Above all remember that your submission should be interesting informative useful or fun and clearly laid out*

The address to write to is Features Editor, Atari User Europa House 68 Chester Road Hazel Grove, Stockport SK7 5NY

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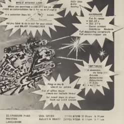
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Your two-year index

What's appeared in Atari User over the past two years

GAME	ISSUE	GAME	ISSUE
Attack Squash	May 85	Gunpowder	Nov 85
Bomb Run	Jul 85	Horse Play	Mar 86
Bounce	Feb 86	Illuminations	Nov 86
Bridge	Feb 85	Mancuna	Apr 86
Cavern Escape	May 85	Maze Muncher	Sep 85
Computer Countdown	Dec 85	Molehunter	Jan 87
Cubes In Space	Oct 86	Pontoon	Oct 85
Destroyer	Feb 87	Raider 1997	Aug 85
Dots Square	Jan 86	Santas Grotto	Dec 86
Esmerelda	Jan 86	Skate Crazy	Apr 87
Fence Builder	Sep 86	Sounds Interesting	May 85
The Fruit Fiend	Aug 86	Space Maze	Jul 86
Frog Jump	Jun 85	Submarine	Jun 85
Fruit Gambler	Aug 86	Torpedo	Apr 87
Fruits	Mar 87	Treasure Hunt	Jul 86
		Wraptrap	Oct 85

SOFTWARE	SUPPLIER	ISSUE
A Day At The Races	Anvil Software	Oct 86
Action Biker	Mastertronic	Jul 86
Attack Of The Mutant Camels	Llamasoft	May 85
Alternate Reality	US Gold	Apr 86
Arcade Classics	US Gold	Jun 86
Archon	Electronic Arts	Sep 85
Atari Smash Hits Volume 1	English Software	May 85
Atari Smash Hits Volume 2	English Software	May 85
Atari Smash Hits Volume 3	English Software	May 85
Axis Assassin	Ariolasoft	Feb 86
Beach Head II	Software Express	Aug 86
Beer Bellys Burt s Brew Biz	US Gold	Aug 86
Bio Defence	Tymac	Nov 85
BMX Simulator	Code Masters	Mar 87
Boulderdash	Databyte	Sep 85
Boulderdash II	Databyte	Jun 86
Bounty Bob Strikes Back	US Gold	Jul 85
Caverns of Eriban	Firebird	Feb 87
Chop Suey	English Software	Nov 85
Cloak Of Death	Bug Byte	Sep 86
Collapse	Firebird	Oct 86
Colleen Music Compendium	Colleen	Sep 86
Colossus Chess 3 0	English Software	Jun 85
Colourspace	Llamasoft	Aug 85
Cross Country Road Race	Activison	Nov 85
Crumble s Crisis	Red Rat	Apr 87
Crystal Raider	Mastertronic	Feb 87
CSE/GCE Level Maths	Software Factory	May 86
Drop Zone	US Gold	May 85
Elektraglide	English Software	Jan 86
Fighter Pilot	Digital Integration	Feb 86
First Steps With The Mr Men	Mirrorsoft	Feb 86
Football Manager	Addictive Games	Jun 85
Ghostbusters	Activision	Oct 86
Greatest Hits Volume 1	Databyte	Nov 86
Gun Law	Mastertronic	Mar 87
Hardball	US Gold	Dec 86
Hard Hat Mack	Electronic Arts	Jul 85
Hijack	English Software	Sep 85
Hunter	US Gold	Dec 85
Jet Set Willy	Tynesoft	Mar 87
Kik Start	Mastertronic	Jul 86
King Of The Ring	Gremlin Graphics	May 86
Kissin Kousins	English Software	Jul 85
Lands Of Havoc	Microdeal	Apr 86
Lapis Philosophorum	Ariolasoft	Sep 86
Laser Hawk	Red Rat	Jan 87
Leader Board	US Gold	Jan 87
Leaper	Bug Byte	Oct 86
Mercenary	Novogen	Jan 85
Molecule Man	Crystal Raider	Feb 87
Moonmist	Infocom	Feb 87
Mr Do	US Gold	Jun 85
Mr Robot	Datamost	Aug 85
M U L E	Electronic Arts	Jul 85
New York City	Americana Software	Jul 86
Ninja	Mastertronic	Oct 86
Nuclear Nick	US Gold	Aug 86
Ollie s Follies	Americana Software	Sep 86
One Man And His Droid	Mastertronic	Jul 86
Pac Man	US Gold	Aug 85
Panzer Grenadier	Strategic Sim	Feb 86
Pensate	Penguin Software	Jul 85
Pitfall II	Activision	Jun 85
The Party Quiz	Software Express	Aug 86
Preppie	US Gold	Jan 87
Quest For Eternity	Bug Byte	Dec 86
Questron	Strategic Sim	Jan 87
Racing Construction Set	Ariolasoft	Jul 86
Raid Over Moscow	US Gold	Nov 86
Realm of Impossibility	Electronic Arts	Mar 86
Red Max	Code Masters	Mar 87
Rescue On Fractalus	Epyx	Oct 85
Rick Hanson	Robico Software	Feb 87
River Raid	Activision	Aug 85
Robot Knight	Red Rat	Apr 87
Savage Pond	Starcade	Nov 85
Screaming Wings	Red Rat	Dec 86
Shamus	US Gold	Sep 86
Shoot Em Ups	US Gold	Mar 87
Sidewinder	Futureware	Jun 86
Silent Service	Microprose	Jul 86
Smart Art	P F Software	Dec 85
Smash Hits Volume 1	English Software	Jun 85
Smash Hits Volume 4	English Software	Mar 86
Smash Hits Volume 5	English Software	Oct 86
Smash Hits Volume 6	English Software	Jan 87
Snowball	Level 9 Computing	May 85
Solo Flight	US Gold	Aug 86
Spitfire 40	Mirrorsoft	Mar 87
Spot The Ball	Creative Sparks	Jan 86
Spy Hunter	US Gold	Dec 85
Spy vs Spy II	Star Software	May 86

SOFTWARE	SUPPLIER	ISSUE
Starquake	Bubble Bus	Dec 86
Star Raiders II	SDL	Dec 86
Strip Poker	US Gold	Oct 86
Summer Games	US Gold	Jan 86
Sun Star	CRL	Nov 86
Super 3D Plotter II	Demon Software	Apr 87
Tapper	US Gold	Dec 85
Temple Of Apshe Trilogy	US Gold	Sep 86
The Archers	US Gold	Apr 87
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Beginners 8	Nested Loops	Dec 85
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Player Missile Graphics 4		Aug 86
Player Missile Graphics 5		Sep 86
Player Missile Graphics 6		Oct 86
Player Missile Graphics 7		Nov 86
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TO ORDER TURN TO THE FORM ON PAGE 59

Exit maps, courtesy of Night Orc

By Brillig

HELLO, it's your old pal Brillig here again but this time I feel a bit old My adventuring mind is still as sharp as ever – no sharper in fact Looking in the mirror I can see no changes looking outside tells me everything is the same – but I am somehow different, somehow rejuvenated in both mind and spirit

A truly amazing thing has happened my friends and Brillig is now consumed with solving every adventure known to man and beast My three hearts pound in unison as frantically I rush to my computer console and without a moment's hesitation load up the software reach into the mailbag and embark upon my own special quest – to help adventurers one and all overcome the fiendish tricks and traps that have befallen so many others in the past

Some news comes to the cave this very morn of a bunch of role playing games soon to be available from SSI called The Wizards Crown The Rings of Zilfin and the Shards of Spring Also coming out soon are Phantasie II and III

Level Nine is about to release its first totally new adventure for many moons Entitled Night Orc it puts you the adventurer into the guise of an actual orc who has been wronged by humans The game contains some startling new ideas from the Austin brothers whose text compression techniques are famed throughout the known universe

Not content to stand still they have developed a new coding system – a way to dispense with map making type in the name of the location you want to go to and the character will head off in that direction You can also tell other characters to run other errands at your behest They have at last done away with those awful graphics that used to dominate their stories and instead are using digitised pictures it all sounds bliss to me and rest assured as soon as Night Orc is in my hands I will give you the full run down

A trip to the offices of Magnetic Scrolls is something of an adventure in itself since it is tucked away in a tiny corner of early South London not a stone's throw from London Bridge I received a warm greeting from the programming team and was quickly provided with a cup of coffee (which I am reliably informed is a ritual – you will never see them without one)

"So you've come to play Guild of Thieves have you?" they all sniggered as they gave each other those "he doesn't know what he's letting himself in for" looks Taking no notice of this idle banter your fearless hero sat down at the keyboard and began to type

The adventure is set once again in Kerovnia and revolves around your attempts to become a better thief and to join the infamous Guild of Thieves of the title The game opens with you and the Master Thief in a small boat adjacent to an old jetty He gives you your instructions which are to relieve a nearby castle of its treasures and return them to him in his boat You start with just a swag bag to your name and a great deal of hope

The pictures in Thieves – and there are around 30 of them – are possibly even better than those in The Pawn After some wandering around the scrublands you will come across the castle complete with its splendid moat and it's here that most of the action takes place

There was some talk of Thieves being easier than The Pawn but you can put all notions of that out of your mind Some of the puzzles are pretty tricky to say the least Thieves also has the same ability as the new Level 9 offering in that it too has the excellent new GO TO command which will let you revisit a location automatically You can even type GO TO SWORD if you can't quite remember where you left it!

The room descriptions are good and meaty and there are lots of little clues hidden in the text that could easily be overlooked The humour that ran through The Pawn (remember the Porter in Hell?) is very apparent I found one lovely sequence while in the library that involves over 26 differ

→

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ent book titles and their contents.

Anyway after about four hours and uncountable cups of coffee I called it a day Guild of Thieves is certainly going to be another classic make no mistake and I for one cannot wait to play the whole thing

Those boys at Infocom have also been pretty busy lately and they've just released a challenging yet very witty adventure – Hollywood Hijinx – based on those terrible B movies of the 50s You play the part of nephew to Buddy Burbank famed producer of a whole series of budget movies like A Corpse Line and Melt Down On Elm Street

He resided with his wife in a typical palatial mansion on Malibu Beach which carried with it all the trimmings of the movie business Uncle and Aunt Burbank have now passed away and left you their whole estate provided that you find 10 treasures that are hidden in the house and grounds before morning

So the adventure opens with you outside the mansion with nothing but a photo of Buddy a torch and the will in your possession Right away there is a puzzle All the doors are locked and you have no keys and checking the windows they are all secure How do you get in? No clues for you I am afraid – but check the packaging very closely Hollywood Hijinx is a great spoof well worth the money and certain to become yet another Infocom classic

While I'm talking about good adventure writing it's time to get something off my chest Something I really detest in an adventure is the quick kill off You know the sort of thing – there you are happily exploring an ancient castle when all of a sudden you turn a corner and You are suddenly engulfed in a room of ice You are dead

Just like that, without even a Brr it's cold in here" to give you a clue! So we poor adventure addicts have to indulge in constant saving just to avoid that eventuality. Ridiculous.

One other major hassle is the maze. I cannot for the life of me understand the mentality of a maze It's a boring repetitive unoriginal waste of time and effort It's put in just so the programmer can glean a little bit of self satisfaction from a fustrated first time mazer If I come across just one more stupid maze I am going to publish that author's name and address to exact revenge! Programmers you have been warned

Now on to your questions Craig Fippard from Grantham writes Could you please let me know what I am supposed to do next in Ballyhoo I can get the balloon pass through the turnstile crawl under the tarpaulin and enter the clown alley as well as finding the ticket I just don't know what puzzle to solve next

Well Craig you must use the ticket to pass through the other turnstile and visit a few more locations in that area There is a fat lady who needs help a hypnotist who will send you into a dream a gorilla with a musical bent and an electric pole to look out for Keep at it and let me know how you get on

Sean Huxley writes I need urgent help in Wishbringer I am stuck in the library Do I need the statue? Sean there is no library in Wishbringer – possibly you mean the museum? If so then the statue is very important indeed – it could even be the missing cat Chaos Try reading the violet note

Barry Prescot is having trouble with Zork I The thief keeps killing him and he still can't get the egg open Listen carefully Barry Give him some of your yolk to carry that will sort out his egg

And finally D Billingham is stuck in Mordens Quest – he just can't get past the waterfall or Tarzan Hrmph such a trifling little ditty for a beast of my experience Draw the outline of the jungle to get past Tarzan and to pass the waterfall you will have to sacrifice the Frog

Well that's about it from me for this month but I'll leave you with a couple of questions Firstly what do you think of the new adventure map section? Why not put pen to paper (or fingers to the keyboard) and let me know which adventures you think deserve covering

Finally there has been much debate about the relative pros and cons of using graphics within adventure games Now you all know my opinions on this matter but what do you think? Drop me a line and let me know who prefers text-only and who prefers graphics – I'll let you know the results in a forthcoming issue

Farewell for now

LIFELINE

Sean Barker of 12 Padbury House Ley Hill Farm Road Northfield Birmingham B31 1VE can offer help on **Adventureland, Pirate Adventure Mission Impossible Mystery Fun House, Pyramid Of Doom, Ghost Town Gruds In Space, Transylvania Castle Morgue Stranded The Payoff, Hitchikers Cutthroats Infidel Witness Deadline and Mask of the Sun**

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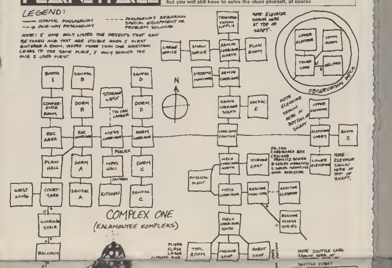
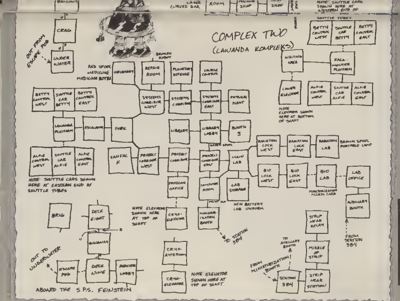

LEGEND:
—— NORMAL PASSAGEWAY
--→ ONE-WAY PASSAGEWAY
---- PASSAGEWAY REQUIRING SPECIAL EQUIPMENT OR PROBLEM SOLVING
NOTE: I HAVE ONLY LISTED THE OBJECTS THAT CAN BE TAKEN AND THAT ARE VISIBLE WHEN I FIRST ENTERED A ROOM, WHERE MORE THAN ONE DIRECTION LEADS TO THE SAME PLACE, I ONLY SHOWED THE ONE I USED FIRST.
LARGE OFFICE
SMALL OFFICE
TRANSPORTATION SUPPLY
ADMIN CORRIDOR NORTH
PLAN ROOM
NOTE ELEVATOR SHOWN HERE AT TOP OF SHAFT.
UPPER ELEVATOR
COMM ROOM
TOWER CORE
U
D
HELIPAD
OBSERVATION DECK
SYSTEMS MONITORS
ADMIN CORRIDOR
N
BOOTH 1
SANFAC B
SANFAC D
STORAGE WEST
CONFERENCE ROOM
DORM B
TIN CAN
LADDER
DORM D
ADMIN CORRIDOR SOUTH
SANFAC E
NOTE ELEVATOR SHOWN HERE AT BOTTOM OF SHAFT
UPPER ELEVATOR
REC AREA
REC CORRIDOR
MESS CORRIDOR
DORM CORRIDOR
CORRIDOR JUNCTION
ELEVATOR LOBBY
BOOTH 2
PADLOCK
PLAIN HALL
DORM A
MESS HALL
DORM C
MECH CORRIDOR NORTH
STORAGE EAST
OIL CAN
CARDBOARD BOX
CRACKED FROMITZ BOARD
B-SERIES MEGAFUSE
K-SERIES MEGAFUSE
GOOD BEDISTOR
LOWER ELEVATOR
NOTE ELEVATOR SHOWN HERE AT TOP OF SHAFT.
CANTEEN
PHYSICAL PLANT
WEST WING
COURTYARD
SANFAC A
KITCHEN
SANFAC C
MECH CORRIDOR
REACTOR MONITORS
REACTOR ELEVATOR
U
D
COMPLEX ONE
(KALAMONTEE KOMPLEKS)
WINDING STAIR
D
REACTOR ACCESS STAIRS
U
MECH CORRIDOR SOUTH
BALCONY
U
D
PLIERS
FLASK
LASER
CURVED BAR
TOOL ROOM
MACHINE SHOP
ROBOT SHOP
NOTE SHUTTLE CARS SHOWN HERE AT
SHUTTLE TUBES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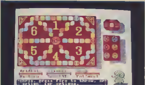

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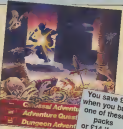

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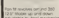

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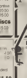

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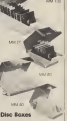

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Advanced Systems & Techniques 16 17
AMC 61
Atlantis Software 61
Avon Micro Centre 61
Charnwood Computers 49
Chips 18
Compumart 62 63
Cut Price Software 60
Digital Integration 64
Doctor Soft 49
Homeview 60
Howfensoft 61
J R Davis 61
Ledbroke Computing 46
Logic Mail Order 26
Magnetic Media 52
Micro Media 60
Midcomm International 52
Miles Better Software 40
Online Systems 61
Page 6 24
Pyramid Video & Software 60
Robico Software 2
Silica Shop 9
Software Express 26
Stocksoft 46
Stort Soft 52
S T V Services 2
Sunaro Software 52
The UK Atari Computer Owners Club 26
York Computer Centre 24

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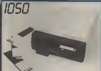

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